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But also containing the  
**THEORY and PRACTICE**  
Of the

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**W**E have perused these Two Volumes of the Builder's Dictionary, and do  
think they contain a great deal of useful Knowledge in the Building  
Business.

Nicholas Hawksmoor,  
John James,  
James Gibbs.

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Printed for A. BETTESWORTH and C. HITCH, at the Red-Lion in Pater-noster-  
Row; and S. AUSTEN, at the Angel and Bible in St. Paul's Church-Yard.



# *Dictionary Polygraphic:*

Or, The Whole

## BODY of ARTS

Regularly Digested,

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*Adorned with proper SCULPTURES, curiously Engraven on more than Fifty COPPER PLATES.*

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VOL. II.

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LONDON;

Printed for C. HITCH, and C. DAVIS, in *Pater-noster Row*; and  
S. AUSTEN, in *St. Paul's Church-Yard.* MDCCXXXV.



## Polygraphick Dictionary.

## J.

**J**ACINTH } Is a precious stone, so call'd from the re-  
 HYACINTH } semblance it bears in colour to the purple  
 flower call'd a *Hyacinth*.

There are four sorts of *Jacinths*: viz. Those intermixt with a vermilion colour; those of a saffron colour; those of an amber colour; and lastly those of a white intermixed with a pale red.

*Jacinths* again are distinguish'd into *oriental* and *occidental*; the *oriental Jacinths* come from *Calicut* and *Cambaya*, and are equal in hardness to the *oriental Amethyst*; the *occidental* are found in *Bohemia* and *Portugal*, which are a degree softer.

The *Jacinths* graves or cuts fine, and would be more us'd for Seals, &c. but that the graving oftentimes costs more than the stone.

The ancients used it for amulets and talismans; and wore it about their neck, or set in rings, &c. and suppos'd it to have the virtue of preserving them from the Plague, &c.

*To make a fair JACINTH.* It is scarce possible to make *Jacintb* without lead, in its composition, wherefore you must put in an ounce of powder of *crystal*, 2 ounces and a half of *minium*, with 24 grains of *verdigrease*, 2 drachms of *sublimate*, and 5 or 6 leaves of *silver*; the whole reduced to fine powder in a brass mortar, and searced through a fine sieve; mix them well together, and put them in a crucible, covered with another, and well luted; then bake and purify it in a glass-house furnace for 12 hours. Then take it off the fire, and pound it again in a brass mortar to a fine powder, sifting it through a fine sieve; then put it in a new crucible, which cover and lute well, and set it again in the glass-house furnace for 24 hours, and 12 more in the annealing furnace: the crucible being cold, take out the matter, which will be of a fine *Jacintb* colour, which cut and polish.

*Another fairer JACINTH colour.* If this *Jacintb* be fairer, it is also more brittle than the other, because it has more *lead* in it. To make it, take an ounce of *crystal* in powder, 3 ounces of *minium*, and 45 or 46 grains of *verdigrease*; mix well these

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matters together, after having pounded them well in a brass mortar, and searced them through a fine sieve; then put them in a crucible covered, and luted, in a glass-house furnace, where let it stand 12 hours.

Then take out the matter, which pound and sift well; then put that powder in another crucible, covered and luted, which put in the same glass-house furnace for 24 hours, and the matter will be well baked.

Then take out the crucible to put in the annealing furnace, and 12 hours after take your matter out of the crucible, which will be of a fine *Jacinth* colour, and may be wrought.

*Another oriental JACINTH colour.* This colour will be of a very fine *reddish yellow*, such as is the true oriental *Jacinth*.

To make it, take 1 ounce of *crystal* in powder, 3 ounces of *minium*, 1 ounce of *arsenick*, prepared as for the *Topaz*, and 1 ounce of *Vitriol* calcined *ad rubedinem*, the whole reduced to a fine powder in a brass mortar, proceeding moreover as in the preceeding chapter.

JADE, a greenish stone, bordering on the colour of olive, much esteem'd for its hardness, which exceeds that of *porphyry*, *agate*, and *jasper*, and is only to be cut with the powder of *Diamond*.

It is mightily esteem'd by the *Turks* and *Poles*, who all adorn their fine works with it, and especially the handles of their sabres.

Mr. *Bernier* tells us, that the caravans of *Thibet* carry it to *Cachemire*, and that the *Galibis* prize it as highly as a diamond.

JANUARY is represented [in *Painting*, &c.] all in white, like snow or hoar frost, blowing his fingers; in his left arm a billet, and *Aquarius* standing by his side.

JANUS is represented [in *Painting*, &c.] with two faces; holding in one hand a long rod or wand; and in the other a key.

The two faces of *Janus* signify time; the one being withered and hoary, shews time past; the other youthful and bearded, time to come.

*Pliny* tells us, that *Numa Pompilius* King of the *Romans* caused the statue of *Janus* to be hew'd out in such sort, that the fingers of his hands appear'd to be 365, to represent the number of the days in the year, and that he was god of it; whereupon the first month in the year was called *Januarius*, from their God *Janus*.

Under the feet of *Janus* are oftentimes plac'd 12 altars referring to the 12 months of the year, or signs of the zodiac, thro' which *Sol* makes his revolution.

The *Phenicians*, as is reported by *Cicero* and *Macrobins*, represented *Janus* by the form of a serpent, holding its tail in its mouth, and continually turning round. Some

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Some represented *Janus* with four faces, as were those statues which were found in divers places in *Tuscany*.

By the 4 faces are signified the four seasons of the year; *spring, summer, autumn, and winter*: which some think to be those of *Venus, Ceres, Bacchus, and Vulcan*; and sometimes the winds with *Æolus* their commander.

**JAPANNING.** *The method of preparing woods for JAPANNING.* 1. Take Plaisterer's size, dissolve it over the fire, making it pretty warm; and mix with it whiting finely powdered, 'till it is of a good body, but not too thick.

2. Take a brush of hog's hair, and with it lay your work over with the former mixture; letting it dry very well: and repeat this so often 'till you have hid all the hollowneffes, crevices, pores, and grain of the wood, letting it be thoroughly dried between every laying.

3. When it has at last grown thoroughly dry, rub all the work over with a wet rag, 'till you have rendred it as smooth as is possible. N. B. *This is called Water-planing.*

4. When it is grown thoroughly dry again, rush it even and smooth, and as close to the grain as possibly may be.

5. After this, wash over the work twice with the thickest of *Seed-Lac Varnish*; letting it stand to dry each time, and if it is not smooth, rush it again, to make it so. See **SEED-LAC VARNISH** in letter V. And **RUSH** in letter R.

6. In a day or two's time, you may varnish it over with black, or what other colour you design, as is directed; and when it is dry, finish it by polishing it.

7. After the same manner carved figures are to be prim'd; also frames, cabinets, stands, tea-table, &c. saving that these are not to be polished, and therefore do not require so great a body of varnish.

8. But for the tops of tables, boxes, sides of cabinets, &c. when the wood is ordinary and rough-grain'd, as deal, oak, &c. you may use common or Joiner's glue, dissolv'd in water, 'till 'tis fine and thin; into which put the finest saw-dust, 'till it is indifferently thick.

9. Then with a brush, fit for that purpose, lay your wooden work over with it; and when it is dry, repeat it so often 'till all the roughness and grain of the wood is sufficiently hidden.

10. After 2 or 3 days let it be scrap'd with a Cabinet-maker's *scraper*, as pear-tree and olive wood are done, to make it as smooth and even as possibly may be, then varnish it as before directed.

This, if well done, might not come behind any other work, either for beauty or durability.

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11. But however those woods, that are firm and close-grain'd, are chiefly and only to be chosen; of all which pear-tree is in the highest esteem.

*Of taking off JAPAN PATTERNS.* 1. Having laid on your ground, whether black or any other colour, and rendered it fit for drawing; and having your draught or design before you in paper, either drawn or printed, do as follows.

2. Rub this draught or print all over the back side with whiting or fine chalk, wiping off all that whiting or chalk, which lies loose and like dust upon the paper.

3. Then lay this paper, whether it be a drawing or a print, upon the table, or piece of *varnish'd work*, with the whited side next to it; and upon the very place, where you would have that figure made, and with a needle (not sharp pointed) fix'd into a small wooden handle (call'd a tracing-pencil) go over and trace as much of the drawing or print, as you think fit.

4. Take the most material and outward strokes, and all that you think will be hard and difficult to draw without a Pattern.

5. Thus by means of the whiting or chalk, you will have the gross form of the draught or print, and such other lines, as will be a direction to you how to perform, what you would have done.

6. Having done this, if you draw in gold size, use fine *Cinnamon*, mixt with gum water, and with a small pencil dipt into it, go over all the lines made by the chalk or whiting; this will hold it on so as not to come off; but you may work upon it with your gold size at pleasure.

7. If you work your metals or colours in gum water, then *trace* or draw over your design with *gum-water*, mix'd with *gold* or *brass dust*; by either of these ways, when it is dry and finish'd, *viz.* either in *gum-water* or *gold size*, you may compleat and finish your work.

*The method of JAPANNING WOOD with BLACK.*

1. The wood being close-grain'd, well-wrought, and smooth, rub it as much smoother as you can, and keep it in some warm place, or not far from a fire; but you must be sure, while you are varnishing, not to let your work be so near the fire as to burn, scorch, or blister it; for which injuries, if they happen, there is no other remedy but scraping off, and varnishing the piece anew: therefore it is best to work in a stove, if it can be, because it gives an even and moderate heat to all parts of the room.

2. Then take this following varnish.

Take of the thickest *Seed-Lac Varnish* 6 ounces, *Lamp-Black* enough to colour it, mixt in a gallipot, and with it first wash over or varnish your piece three times, letting it dry thoroughly between

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between each time : again, with the same varnish wash it over 3 other several times, letting it thoroughly dry between each time; and rub it smooth between each of them.

3. Take the following varnish. Of the thickest *seed-lac varnish* 6 ounces, *Venice turpentine* 1 ounce, and wash over your work with it 6 times, letting it stand 12 hours between the 3 first and the 3 last varnishes.

4. Your work being thus far done, take the following *Japan varnish*.

Take of the finest *seed-lac varnish* 6 ounces, of *lamp-black* a sufficient quantity, mix them, and with that let your work be varnish'd 12 times, standing 12 hours between the first 6, and the last 6 washings.

Then let it stand to dry for 6 or 7 days; after which, polish it with *Tripoli*, and a rag as directed.

5. But in polishing you must work at it, 'till it is almost smooth, and then let it stand by for 2 days; then polish it again almost enough, and again let it be 6 days, and then finish the polishing of it; and then clear it up with *oil* and *lamp-black*, and so will you have a good *black Japan*, scarce at all inferior to the true *Japan*.

*Another BLACK JAPAN.* 1. Lay your *black* as before directed in the 2d and 3d articles preceeding, then take of the *Japan varnish* following, viz. of the finest *seed-lac varnish*, and of the best *white varnish* (See WHITE VARNISH) of each 3 ounces, mix them well, and then tincture it with *lamp-black*, with which varnish your work 7 or 8 times, letting it stand 24 hours between each time to dry, and then repeat it 4 or 5 times more, keeping it but just warm.

2. Then let it stand 2 days, and wash it 6 or 7 times with fine *seed-lac varnish* only; and after 6 or 7 days polish it as before directed.

3. If your work should after a little time grow dull, cloudy, and misty, That may be remedied by a slight polish, and clearing it up afterwards: because this dullness might be caus'd by reason that either your *varnish* was not yet thoroughly dry, or that it was not laid thick enough on.

4. If it is from the first cause, a new polishing mends it; if it is from the latter cause, you must mend it by 5 or 6 washes more of fine *seed-lac varnish*, and then polish it again as before.

5. It is also to be noted, that in this and all other *Japan* works, you must never strike your pencil twice over the same place, because it will make your colours or varnish lie rough and ugly; but every stroke wash a new place, carrying a steady, quick, and even hand, beginning at the middle of the table,

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and so drawing your brush to either end, 'till the whole piece has been pass'd over.

WHITE JAPAN. 1. In doing this, great care must be taken that nothing may come near that will foul or soil it.

In the first place, lay the ground with ising-glass size, (*see* ISING-GLASS and SIZE) mixt with as much Whiting scrap'd into it as will make it of a reasonable thickness, or so long, till that by a Stroke your pencil being dipt into it, will whiten the Plain of your work; but let it be neither too thick nor too thin; let the whiting be well mix'd with your size, with your Hogs-Hair Brush.

2. Whiten your work once over with it, and when it is thoroughly dry, do it over again; and when dry, repeat it the third time, after which let it stand to dry for 12 or 24 Hours, covering it from dust.

3. Then with some *Dutch* rushes, let it be rush'd as near the grain of the Wood as you see fitting.

4. Take fresh *Ising-glass* size what quantity you please, and flake white so much as will make the size be of a fair body, mix them well together, and with this go over your work 3 several times, letting it be thoroughly dry between each time, and afterwards rush it very smooth.

5. Then take *white Starch* boil'd in fair water, till it is somewhat thick, and with it, almost blood-warm, wash over the whole work twice, letting it dry between each time, and so let it stand for a Day or two.

6. It being first wash'd with rectified spirit of wine, to clear it from the dust, dip a pure clean pencil into the finest white varnish, (*see* WHITE VARNISH) and do over the work 6 or 7 times; and 2 days after, varnish it over again the same number of times; if this be well done, it will give it a finer gloss than if it were polish'd; but if it be not cleanly and nicely done, polishing will then be necessary, for which reason you must give it 5 or 6 varnishings more.

7. If this last is well done, it will not stand in need of polishing, and then 2 washes more will do: but if it requires polishing, you must then give it 3, and allow it a week's time to dry in, before you begin to polish.

8. *In Polishing* you must make use of the finest *Tripoli* and rags, not too wet nor too dry, with a light and gentle hand, and in clearing (instead of lamp-black and oil) you must use putty and oil, and conclude with white starch mix'd with oil, to finish it.

9. But there are some persons, who wholly reject this work with size, liking that only which is perform'd with varnish, and therefore such may, if they please, use the *White Japan Varnishes*



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*ishes* (see WHITE JAPAN VARNISH) exactly according to the method laid down for the black ; and this will not be so ready to crack or peel off.

**Common RED JAPAN.** 1. Take ising-glass size, or rather the thickest *seed-lac varnish* (as some advise, because it will not then break off in polishing, as that mix'd with size commonly does, besides it better helps to bear the body of varnish, which must afterwards be laid over it) as much as you please, fine pure *vermilion* a sufficient quantity, as discretion shall direct.

2. Warm your work by the fire, and with a brush varnish it with the former mixture, doing it over 4 times, and letting it dry between every time ; after which, rush it smooth.

3. This being done, wash it over 8 times with *ordinary seed-lac varnish*, and set it by for 12 hours ; then rush it again but slightly, to make it look smooth.

4. And lastly, for an exquisite outward covering, wash it 10 times with the best *seed-lac varnish* ; let it lie 7 days to dry, and then polish it with *Tripoli*, and clear it up with oil and lamp-black.

**Deeper or dark RED JAPAN.** First lay on your common red, (as before directed) then take thick *seed-lac varnish*, what quantity you please, and fine *sanguis draconis* in fine powder, a sufficient quantity, mix it by little and little with the varnish, and a very small matter of it will extremely heighten your colour, and every wash will render it deeper.

When the colour is almost as you design, forbear the using any more of the *sanguis draconis*, because the after-layings of the *seed-lac varnish* will heighten it.

Then consider how many varnishings are still to be laid on, and accordingly use your *sanguis draconis*, finishing the work, as is directed in the former *common red Japan*.

**A pale RED JAPAN.** Use the following *pale red Japan varnish*.

Take *vermilion*, what quantity you please, mix it with so much white lead as to make it of the degree of paleness you would have it, or rather paler, because the varnish will heighten it ; mix this with *seed-lac varnish*, and wash your work over with it several times, letting it dry between every time, and proceed as you did before as to the *common red varnish*.

Where take notice, that in making this mixture, you must consider how many times you are to varnish after your red is laid on ; for if there be many, then know, that they will increase and heighten the colour, for which reason you must make your colour of a degree of paleness accordingly.

**BLUE JAPAN.** 1. Take gum water, what quantity you please, and of white lead a sufficient quantity, grind them well

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upon a marble, take *Ifing-glass* size, what quantity you please, and of the finest and best smalt a sufficient quantity; mix them well together, then add to them of the white lead ground (as before) so much as will give it a sufficient body, mix all together to the consistence of a paint.

2. Do your work over with this mixture 3 or 4 times, till you perceive the *blue* to lie with a good and fair body, letting it dry thoroughly between each time; if your blue is too pale, put more *smalt* among your size, without any *white lead*.

3. Then rush it over smooth, and go over it again with a stronger *blue*, and when it is thoroughly dry, wash it 3 times over with the clearest *Ifing-glass* size alone; and let it stand for 2 days to dry, covering it.

4. Then warm your work gently at the fire, and with a Pencil varnish your work over with the finest white varnish, repeating it 7 or 8 times, letting it stand to dry 2 days, as before. After which, repeat again the third time the washes 7 or 8 times in like manner.

5. Let it now stand to dry for a Week, and then polish it as before directed, and clear it up with lamp-black and oil, to give it a polite and glossy appearance.

6. As to the colour, you must be guided by your reason and fancy, whether you will have it light or deep; for a small proportion of the lead makes it deep; a greater, light.

Also the size for laying whites, blues, or any other colour, ought not to be too strong, rather weaker, and just sufficient to bind the colours, and make them stick on the work; for if it be too stiff, it will be apt to crack and fly off.

And the reason of washing twice with clear size, is to keep the varnish from sinking into, or tarnishing the colours; and in this case it ought to be of a strong and full body.

LAPIS LAZULI JAPAN. 1. Take *Ifing-glass* Size, or thick *seed-lac varnish*, and mix it with *Spodium*, or white lead; and with this varnish your work 3 or 4 times over, laying it for a ground-work, letting it dry between each time.

2. Let it stand 2 or 3 days to be thoroughly dry, and then *rush* it, till it is very smooth, setting it by 2 or 3 days more after the *Rushing*.

3. Then take thick *seed-lac varnish* at pleasure, mix it with fine pure *blue smalt*, with which varnish over your work 5 or 6 times, letting it dry between each time, then let it stand by for 2 days and *rush* it again.

4. When it has been rush'd smooth, varnish it twice over, once with the best *white varnish*, and set it by to dry for 2 days more, then mix pure *Ultramarine*, or fine blue smalt, with the  
*best*

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*best white varnish*, with which varnish it 6 or 7 times, till it comes to a full body, and a perfect likeness, letting it stand to dry between each varnishing.

5. At the last time of *varnishing* with the *blue Varnish*, run all your work over stragglingly in wild, irregular streaks (in resemblance of nature) with *liquid* or *shell Gold*, filling the *blue* as you see occasion, and adding very small specks up and down, and such other various colours, as are usual to be seen upon the stone.

6. When this has been done, and the work is grown thoroughly dry, varnish it 3 or 4 times over with the *best white varnish*, letting it stand to dry between each time; afterwards let it stand 2 or 3 days, and then polish it with *Tripoli*, and clear it with *lamp-black* and *oil*.

7. You are to take notice of this, that by these methods you may make and use any colour you can fancy, or which reason and experience shall direct you to; but withall, that all colours that are light, and apt to tarnish and lose their beauty or gloss, with *seed-lac varnish*, must be covered and finish'd with the *best white varnish*, that of *seed lac* being prejudicial.

**CHESNUT-coloured JAPAN.** 1. Take *Indian Red*, or *Brown red oker*, (which you please) grind them with *Ising-glass*, or parchment size, upon a *Porphyry* stone, till they are as soft and as fine as butter; then mix a little *white Lead*, which grind strongly, and lastly *lamp-black* in a due proportion, stirring, and mixing them well together.

2. If the mixture is too bright, darken it with *lamp-black*: if too dark, heighten it with *white lead*, varying the proportion till you have brought it to the colour you would have it: for what the colour is while it is wet, it will be exactly the same when it is varnished; tho' drying without varnish, it would look otherwise.

3. Take thick *seed-lac varnish* 6 ounces, of the former prepar'd colour, what quantity you please; mix them in a gally-pot over a gentle fire for use.

**Another Chesnut JAPAN.** 1. Take thick *seed-lac varnish*, and mix it with the same colours as you did the size, lightening it with the *white lead*, if too dark, and darkening it with *lamp-black*, if too light, till you have brought it to be of the colour you would have it. This mixture will be much better with the *seed-lac varnish*.

2. The colours being thus mix'd, if you use the size mixture, put some of it in a gally-pot over a gentle fire to melt it, or give it a fit temper not too thick, nor too thin; then, with a hog's hair *brush*, wash therewith your Piece smoothly over, and let it dry, which repeat so often, till your colour lies full and fair.

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3. When it is thoroughly dry, rub it smooth; but not close to the wood, and so let it rest a day or two: and then wash it with *seed-lac varnish* 3 or 4 times, letting it stand to be thoroughly dry.

4. Or you may begin, or lay your ground-work, with the *thick seed-lac varnish*, going over the work as with the size mixture: afterwards, having let it stand to dry, and rub'd it, you may go over it 3 or 4 times again, with the *seed-lac varnish* alone, letting it dry as before.

5. When you have done this; either with the *size-mixture*, or the *varnish-mixture*, and they are grown thoroughly dry, then varnish it again up to a body, with *fine white varnish*, till it is fit to be polish'd; which perform with *fine tripoli*, and a rag and water, and then clear it up with *lamp-black* and oil.

*Olive-coloured JAPAN.* Take *ising-glass*, or parchment size, (*see SIZE*) what quantity you please; *English pink*, in fine powder, a sufficient quantity; grind them together, till they are of the consistence of butter: then mix it with *lamp-black* and white lead in a due proportion, which you may find by making several trials; adding white lead, if it be too dark, and lamp-black, if it be too light.

If it be too *green*, help it with a little *raw umber* ground very fine, for this will take away the *greenness*.

*Another Olive-coloured Japan.* Take thick *seed-lac varnish*, 6 ounces; *English pink* in fine powder, mix'd with lamp-black, and white lead in due proportion, a sufficient quantity. If it be too light, help it with lamp-black; if too dark, with white lead; and if too green, with umber ground fine. This is the best of the two, with either of these varnish over your piece, according to the rules prescrib'd for other colours, polishing and cleansing it as before directed.

Where you are to take notice,

1. That no colours laid in size, will endure so strong a polish as those in varnish; but are more subject to be rubb'd off.

2. That the finishing *varnish* must be the *best white varnish*, that the colours may not tarnish.

*MARBLE and TORTOISE-SHELL JAPAN.* Your wood being prepared in all respects, as for *white Japan*, then lay it over with *flake white* or *white lead*; and if you design your work to be a *white* with some veins, use *vine-black* (made of the cuttings of vines, burnt and ground;) mix it with a very weak *ising-glass size*, made warm, the said *vine-black* and white lead, making 2 or 3 degrees of it, till you have produc'd the intended colours for the clouds and veins of marble.

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2. Then with a large, clean brush, wet the work over with water ; and before it is dry, dip a camel's-hair pencil in the palest thin mixture, and so lay the faintest large clouds and veins, which being laid on while the work is wet, will lie soft and sweet, like that which is natural.

3. And before it is too dry, gently touch all the lesser veins, and variety of the marble, with a *smaller pencil*, and one degree darker ; endeavouring, as much as may be, to imitate nature in all its footsteps.

4. Then, with a small-pointed feather, touch and break all your smaller veins with the deepest colour, and making them irregular, wild, and confus'd, as they appear in the real stone : then set it by to dry for a day or two, and wash it over with *ising-glass size* or *parchment size*.

5. After it has stood for 2 or 3 days to dry, varnish it over 5 or 6 times with the *best white varnish*, letting it stand to be thoroughly dry between each time : then set it by again for a week, and afterwards polish it and clear it up, according as you are directed in varnishing other works.

6. If you would have it represent either *white* or *grey* marble, you must use the *best white varnish* ; but if *yellowish*, or of a *parchment colour*, you must use the *best seed-lac varnish*, either alone, or mix'd with the white varnish, as you please.

*Another marble JAPAN.* 1. Take of the *best white varnish*, or of the *universal varnish*, with which mix *white lead*, finely powdered, and *lamp-black*, or *ivory black*, in what proportion you shall think fit, making 3 degrees of it.

2. Go over the whole work with a brush pencil, with the first and lightest degree, clouding and marbling it in imitation of nature, going over it 4 times, letting it dry between every time.

3. Go over the work again with a second darker degree, and a fresh clean pencil, *viz.* some of the clouds, and edges of the clouds, as also some of the greater and lesser veins, shadowing and making them something deeper ; repeating this work in different places : in some, twice ; in some, 3 times ; and in some, 4 times.

4. With the third and darkest degree, go over the edges of some of the darker veins, and over all the lesser veins, repeating the work in spots and particular places 4 times, as before.

5. After you have done all this ; let it stand by 2 or 3 days to dry, and strike it over 4 or 5 times or more, either with the *best white varnish*, or with the *best seed-lac varnish*, setting it by to dry between every time ; then let it stand to dry for a week, and then *polish* it, and clear it as before directed for other japann'd works.

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*To make* TORTOISE-SHELL JAPAN. 1. That which is here endeavoured to be imitated, is *tortoise-shell* laid upon *silver foil*, which gives it life and beauty; now to imitate this well, the wood must be close grain'd and smooth, and well wrought, as *box*, *pear-tree*, *walnut-tree*, &c.

2. But if the wood be coarse-grain'd, as *deal*, *oak*, &c. it must be first prim'd with *size* and *whiting*, letting it dry between each time, and at last *rush* it smooth.

3. Then strike over the breadth of a *leaf of silver* with a fit *varnishing pencil*, and the *thickest seed-lac varnish*, then take up the silver leaf with a cotton, and lay it on your work while it is moist, dabbing it down close to the work, as is directed in *gilding*.

4. Then, in the like manner *varnish* another place, and lay on another leaf as before, doing this till the whole work is covered over with leaf silver, then let it stand to be thoroughly dry, and sweep off all the *loose silver* with a fine hair-brush.

5. After this, take *lamp-black*, or rather *Cologne's Earth*, (which comes nearest to the colour of the shell,) as much as you please, and grind it with parchment size, or gum water, till it becomes very fine and impalpable; and when it has been ground very fine, mix it with more *parchment size* and *gum water*, agreeing with what you first ground withall.

6. Spot the darkest part of your shell-work with this mixture after a careless, cloudy manner, imitating nature as much as can be, letting a piece of true tortoise-shell lie by you for your imitation.

7. Grind fine *sanguis draconis* in *gum water* very soft; but some grind it dry, till it is very fine, and then mix it with *fine seed-lac varnish*, which is most proper and agreeable for this work, and not so apt to be polish'd off as size or gum water.

8. Now whereas there are several reds, lighter and darker, to be found on the edges of the blacker part, which sometimes lie in streaks and clouds on the transparent part of the shell; these are to be imitated with one of the two former mixtures of *dragon's blood*.

9. With a small pencil dipp'd in one of those mixtures, dash the said *red streaks*, &c. flushing them in and about the dark places, both thicker and thinner, fainter and lighter, and with less colour towards the lighter part; and afterwards sweeten it by degrees, that it may so lose its strength and redness, as to be quite lost in the silver, or more transparent parts of the work.

10. When you have done this, give it 6 or 7 washes of *fine seed-lac varnish*; and letting it stand to dry for a day or two, *rush* it gently and very smooth, to render it fit for the next operation.

11. Take fine *sanguis draconis* and *gamboge*, of each a sufficient quantity, reduce them to a fine powder, mix these with as much



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much *fine seed-lac varnish* as will varnish the piece 6 or 7 times over, and set it by to dry for 6 or 7 hours, or more.

12. Then give it another, or third *varnishing* with the last mixture, going over it so often, till the *silver* seems to be chang'd to a *gold-like* colour.

13. And lastly, take care that your varnish be not too thick and high coloured with the *sanguis* and *gamboge*; but rather heighten it by degrees, lest the *silver* be too high coloured, before it has had a sufficient body of varnish. Let it stand to dry 6 or 7 days, then polish and clear it up, as before directed.

*Another tortoise-shell JAPAN.* 1. First let your work be very well prim'd, as before directed, then *lacker* and size it in oil, as is taught in the art of *gilding*.

2. Lay on the *leaf silver*, and let it stand till it be very dry, and having the following colours ready, finely ground in oil, *viz.* *red lake*, *cinnabar*, *brown pink*, *Cologne's earth*, alias *burnt umber*; place them distinctly on your pallet.

3. Strike over the work with *turpentine varnish*, and while it is wet, mix *lake* and *brown pink* thin with *varnish*, and with it lay all your faintest clouds or spots, which soften sweetly whilst the varnish is moist.

4. Let it stand 5 or 6 hours, and if the colours are dry, with a large soft pencil, pass it lightly over again; and again moistening it, put in more clouds, and darken them more and more, with *umber* and *Cologne earth*, before it is dry; always imitating the life, and sweetening your work, by blending and insensibly mixing the colours after they are laid, so that it cannot be perceiv'd where they begin or end.

5. If the clouds are not dark enough, repeat the clouding and varnishing once more, as you shall see occasion; when the work is well dry'd, glaze it over two or three times with *brown pink*, with a small tincture of *verdigrease* in it: or you may varnish it with a *fine seed-lac varnish*, and then finish it, as before.

*Another tortoise-shell JAPAN.* First lay a white ground, as before taught: then, with proper colours, as *vermilion*, *auripigment*, &c. duly mix'd with *common* or *turpentine varnish*, streak and cloud, or shadow the white ground, with any irregular fancy at pleasure, imitating tortoise-shell as much as you can.

2. Let it stand to be thorough dry, and then strike it here and there with the reddish yellow varnish, mix'd with a little *cinnabar* or *Indian lake*, clouding the work up and down as nature requires, and touching it also up with *varnish*, mix'd with *lamp* or *ivory-black*.

3. Having done this, varnish it 5 or 6 times over with the *finest white varnish*, or the *universal varnish*, or with the *fine seed-lac varnish*, letting it stand to dry between every time.

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*Another tortoise-shell JAPAN.* 1. Lay a white ground as before, and smear it over with *vermilion*, or some such like, over which lay *leaves* of *gold* or *silver*, as before taught, with *gum ammoniacum*, *lacca*, *varnish*, *common varnish*, *size* or *glair*.

2. Having done this, and it being thoroughly dry, shadow, cloud and stain it, according to some of the former directions, and in imitation of nature; striking it over here and there with *yellow varnish*, or *reddish yellow varnish*, and *red varnish* mix'd with *yellow varnish* in perfect imitation of the shell.

3. And lastly, then strike it 6 or 8 times over, either with the best *white varnish*, or with *the fine seed-lac varnish*, letting it stand to dry between every time; then let it stand to dry for a week, then *polish* and clear it as before.

JAPANNING with *gold size*. 1. When your work is wrought, and you would decypher on it, draw the *gold size* (See GOLD SIZE) all over that part, and that part only, which you intend to gild or adorn with *gold*, omitting those places where you intend to lay your metals and other colours, as *silver*, *copper*, *brass*, &c.

2. The *size* being thus wrought for the *gold*, let it remain 'till it is so dry, that when you put your finger upon it, it must be glutinous and clammy, and stick a little, but not so moist, that the least particle of it should come off with your fingers; but that it may be much like to thick glue, when it is half dry.

3. When it is in this temper, it is the very nick of time, when the *gold* is to be apply'd; then take a piece of soft wash-leather, or the like, and wrap about your fore-finger; dip it in your *gold dust*, and rub it where your *gold size* is laid, for it will stick on the *size*, and no where else.

4. If any *gold dust* lies scattered about your work, brush it all away into your paper, in which your *gold* is, with a fine varnishing brush, which has not been us'd.

5. Then with your pencil draw that part with *gold size* also, which is design'd for your *copper*; and let it dry, as has been directed for the former, and then cover it with *copper dust*, after the same manner as you did with the *gold dust*.

6. Having done this, lay your *silver size*, and when it is dry as before, lay on your *silver dust*, as you did the two former.

7. But this is always to be observ'd, that the metalline colours are to be laid, successively one after another, letting each be covered, and thoroughly dry, before you enter upon a distinct colour.

8. After all these, the other colours (which are not metalline) are to be laid on, with *gum-water*, reserving the rocks, &c. for the last part of the work.



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9. If you have mix'd more *gold size* than you have occasion for at one time, or if you are hindred from finishing it in one day, (you will observe that your size, in 5 or 6 hours time, will have a skin upon it :) in order to this, put the pencils into a gallipot of water, and pour fair water over your pot of gold size; and if your size should grow too thick, you may thin it with *Venice Turpentine*; but you are to take notice, that doing this oftener than once will spoil the size.

10. Let your size be of a due consistence, neither too thick nor too thin, that it may run smooth and clear, and that your strokes may be fine and even, so that you may be able to draw the most fine hair strokes.

11. If you would imitate *Japan-work* exactly, avoid filling and thronging your black with draughts. In the true *Indian* work the ground is never crouded up with many figures, houses, or trees; but a great space is allow'd to a little work, for the *black* adds lustre to the *gold*; and the *gold* adds an excellency to the *black*.

12. In these works you may use some variety of metals, but in a very slender proportion to that of *gold*, which is the general ornament and characteristick of the genuine or true *Japan* work.

13. Be very exact in tracing or drawing out your design in *vermilion* or *gold*, to do it with an even hand: then your *gold size* being ready prepar'd, make with a small pencil the outward lines; the boundaries of the rocks, and those things that seem to lie beyond the buildings.

14. Begin those parts of the work that are most distant from you; because then you will not be liable to rub or deface any thing while it is wet.

15. When you have done the farthest parts, work just according to your pattern (if you have any) and draw the *gold size* on the places, answering to the black lines of your print or pattern, and no where else, leaving the white for the *black Japan*, or ground of the work.

16. And in all respects use your size, as if you were to copy the print or pattern on white paper with ink or black lead; only you must take care, that while you are working on one part, you don't suffer that which is already done with size, to grow so dry, that it will not hold the metals; and for that reason you must often try in what case those parts of your work that are already siz'd are in.

17. And therefore you must sometimes be drawing, sometimes gilding; and then go to drawing again, and then to gilding; continuing this alternately 'till your whole work is quite finish'd.

18. If you find it troublesome to draw the *white*, and overpass the *black*, or on the contrary to draw the *black* and omit the *white*; on the tops of houses, foldage of figures, faces, or the like; then for your ease overlay all those parts of buildings, foldages, faces, &c. with *gold size*, and lay the metals on them; and when they are well dried, wash over those places only which you design to set off with *black*, with your *securing varnish*.

19. Tho' in some *Japan-work*, *silver* is sometimes made use of; yet it is but very seldom, except in some rais'd works, because the best and brightest *silver* is too splendid a metal for *black Japan*; and therefore we chuse instead of that a kind of dull or dirty *silver*, which is *tin-powder*.

20. And *lastly*, you may set off your plain metals, when rubbed on *gold size*, either with metals mix'd with *gum-water* or *gold size*, viz. when the plain metals are laid and thoroughly dry, hatch or work in the size for setting off, as you would do with metals mixed with *gum-water*, and it is not to be doubted you would find the *gold* to be the best.

JAPANNING with GOLD and Colours. 1. Draw or trace out your design, and fill most part of your small works with *gold*, passing by, nevertheless, some few of them are to be reserv'd for bright *copper*, *green*, *gold*, &c. to be so added to the pieces, that they may grace and enliven the work.

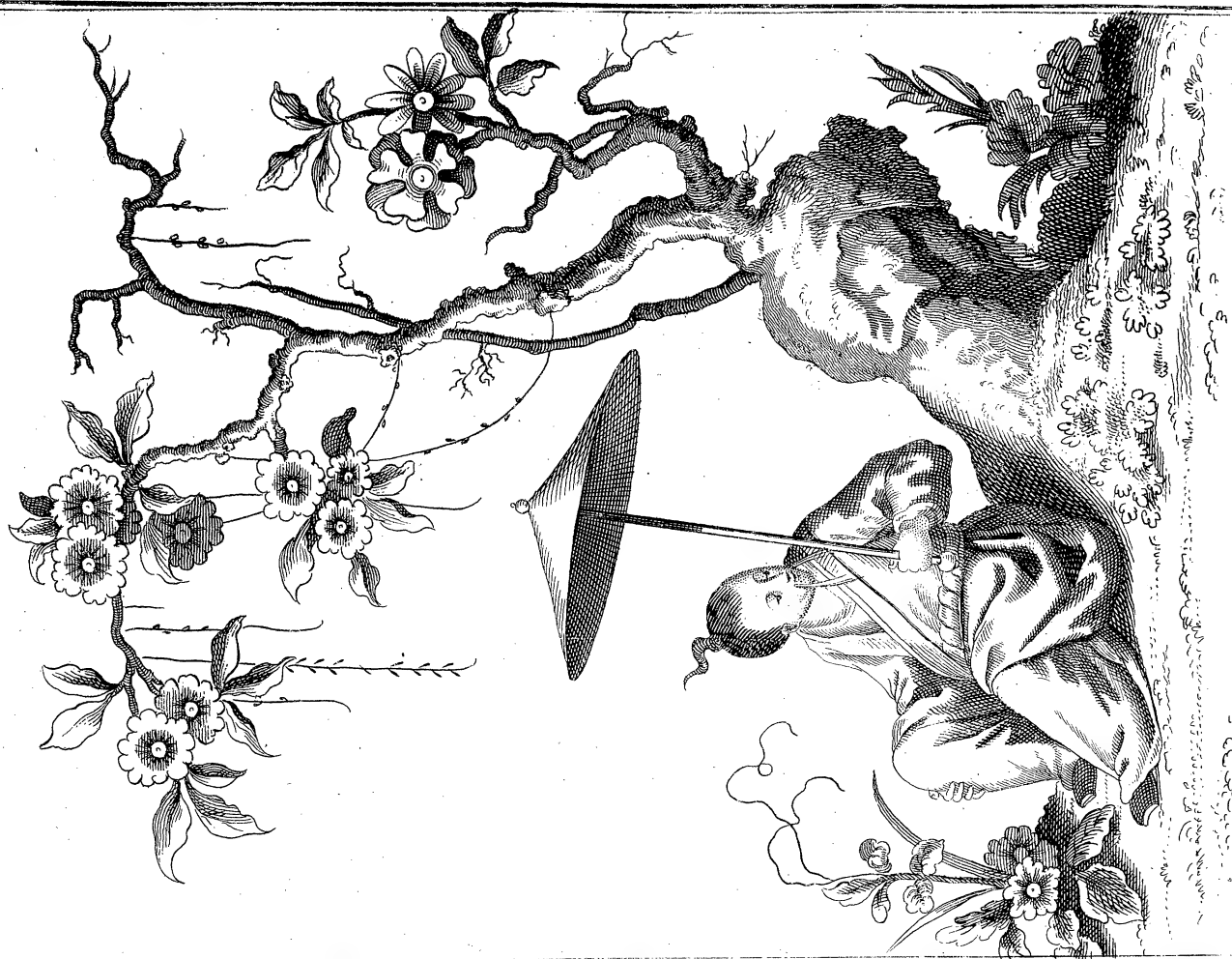
It is usual with *Japanners* to fill frequently with dead metals, and to bind them in with *gold*.

2. Suppose you have great flowers, you may fill the seeded part thereof with *silver*, the leaves with *vermilion*, and in setting off work it with *black diamond* wise; and the little spots of *black* which lie in the *white*, work with bright *red copper*, then the part which is fill'd with *red*, bind in with *silver*, and vein it with the same.

3. The seed of another large flower may be fill'd with bright *copper*, the leaves with *silver*; and in setting off border the seed with *black*, the inside with *silver*, and compass in the leaves with *gold*, hatching them with *black*.

4. If any large flower is partly hid with a large leaf or leaves of the plant, let the seed of this be *green gold*; some parts bright *gold*, and if any spots are in those parts, let them be done with pure *Cinnabar*; the flower with *orange-tawney*, and set off with *silver*; and the leaves of the plant with a yellowish green.

5. If there be a third flower, that may be done with green *gold*, the seed of it with bright *gold*, squar'd with *black*; other flowers may be laid with *silver*, the seeds with bright *copper*, and hatch'd and squar'd with *black*; other flowers with *Cinnabar*, the seeds with transparent *green*, enclos'd with *vermilion*, and the leaves hatch'd in with *silver*.





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6. Another large flower may have its seed *red*; checquer'd with *Silver*, the leaves cover'd with *blue*, hatch'd and surrounded with *Gold*, lesser flowers *red*, seeded with *blue*, and set off with *silver*.

7. Another large flower may be laid with transparent *blue*, bounded and wrought with *gold*; the leaves cover'd with *silver*, hatch'd with fine *cinnabar*. If there be another flower like the former, lay it with *blue*, seed it with dirty *copper*, set off and inclos'd with *silver*, its leaves with bright red *copper*, hatch'd with *black*.

8. Lay the seed of other flowers in transparent red, set them off with *silver*, border with *black*; make the leaves *silver*, and hatch with *black*; or make the seed bright *copper*, compassed and set off with *black*; the leaves red copper, which may be hatch'd and inclos'd with *white*.

9. Though in what has been said, *filling* and *setting off* has been spoken of together, for the more easy apprehending of the matter; yet the plain colours must always be laid, before you think of setting them off; because you are more ready to set off with one colour before you undertake another, and your fancy is more ready to adorn and burnish, or fill every single flower and leaf.

10. But when you have filled the flowers, you are next to consider what is to be the covering of the large leaves; let them be adorn'd with metalline colours, generally, such as *green* sullied *gold*, pale dull copper; but here and there intermixing transparent *blue* and *green*: bound and vein them with such colours as give the greatest life, such as may be cheerful and delightful.

11. Sometimes you may double the borders of the leaves with the ground black of your piece left between, and make the veins, finishing lines, and the stroaks you set off with, fine, clean, even, and smooth.

*The way of JAPANNING wood or paper.* The people of *Japan* have a method of making plates, bowls, and other vessels of brown *paper*, and sometimes of fine *saw-dust*.

These vessels are very light and strong, after they have been varnished.

The method of making them is as follows:

Boil a good quantity of slips or pieces of *brown-paper* in common water; mashing them with a stick, while it is boiling, till it is almost become a paste; then take it out of the water, and pound it well in a mortar, till it is come to a Pumice, like rags pounded in the trough of a paper-mill.

Then take gum-arabick, and make very strong gum-water with common water, a quantity sufficient to cover the paper.

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paste an inch thick: put these together into a large glaz'd pipkin and let them boil, stirring them very well together, 'till you think the paper paste is impregnated with the gum; then having a mould ready to give the paste the form or shape you design it, put it into it.

The mould is made as follows;

As for example, suppose you design to make a thing in the form of a pewter or earthen plate, you must procure a hard piece of wood to be turn'd by a Turner, on one side of such a form, (*i. e.* like the back of a plate) and a hole or two made in the middle quite through the wood.

And besides this, another hard piece of wood must be turned, much of the same figure, about the eighth part of an inch less than the former; and, if you please, you may have some little ornament carved or engraven on the wood. Oil these Moulds very well on the sides that are turn'd, continuing to oil them, 'till they are well soaked with oil, then they will be fit for use.

When you are about to make a plate of the paper-paste, take that mould that has the hole in it, and having oil'd it again, set it even upon a strong table, and spread over it some of your paste, as equally as possible, so as to be every where a quarter of an inch thick; then oil the other upper mould very well, and set it as exactly as may be on your paste, and press it hard down; then set a great weight upon it, and let it stand for 24 hours.

*N. B. The hole at the bottom is for the water to pass through, that is press'd or squeez'd out of the paste; and the oiling of the moulds is to prevent the gumm'd paste from sticking to the wood.*

When the paste is dry, it will be as hard as a board, and be fit to lay a ground upon, made with strong *size* and *lamp-black*; then let it stand to dry leisurely, and when it is thoroughly dry, then mix *ivory black* finely ground with the following *varnish*.

*To make the strong JAPAN varnish.* Take an ounce of *colophony*, and having melted it in a glaz'd pipkin, and having ready 3 ounces of *amber*, reduc'd to a fine powder, sprinkle by little and little into it, adding now and then some *spirit of turpentine*; when this is melted, sprinkle in 3 ounces of *Sarcocolla* finely powdered, stirring it all the while, and putting in frequently more *spirit of turpentine*, 'till all is melted; then pour it through a coarse hair-bag, placed between 2 hot boards, and press it gently 'till the clear is receiv'd into a warm glaz'd vessel. Mix ground *ivory black* with this *varnish*, and having first warm'd your paper plate, paint it in a warm room before the fire, as equally as you can, and set it into a gentle oven, and the next day put it into a hotter oven, and on the third day

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day into one very hot, and let it stand in it 'till the oven is quite cold, and then it will be fit for any use, either for containing liquors cold or hot, and will never change; nor can these sort of vessels be broke without great difficulty.

It is highly probable, that if the moulds were cast of any hard metal, they might do better than if turn'd in wood.

*The method of making them of the colour of gold.* Having prepared plates, bowls, or any other vessels, according to the method before directed; or according to this that follows;

Take fine saw-dust, and having dry'd it well, pour on it some *turpentine*, mix'd with an equal quantity of *rosin*, and half as much *bees-wax*: mix them well, and put them to your dry *saw-dust*; stirring all together, 'till the mixture becomes as thick as a paste; then take it off the fire, and having warmed the moulds, spread some of your mixture on that which has a hole in the middle, as equally as possibly can be, and press down the upper mould upon it; then set it by, let it stand 'till it is cold, and the vessel will be fit for painting.

You may, when the *turpentine* is melted, put in some *sarcocolla* finely powdered, to the quantity of half the *turpentine*, stirring it well, and this will harden it. This composition ought to be made in the open air; because being apt to take fire, it will endanger the house.

But which-ever of the mixtures you make use of, if you would have them look like gold, do them over with size; and when that begins to stick a little to the finger; lay on leaf-gold, either pure or the *German* sort; do this as is directed for GILDING, &c. which see.

But the *German* gold indeed is apt to turn green, as most of the preparations of brass will do; such as those of *Bath-metal*, and others of the like sort, which look like gold when they are fresh polish'd, or clean'd every day.

But as they being expos'd to the air, will change or alter to an ugly colour, gold is rather to be chosen; and is durable, never changing, and of a much finer colour than any of the former for a continuance.

And altho' the leaf-gold is tender, and may be subject to rub off; yet the varnish, with which it is covered, will keep it bright and entire.

After the gold has been laid on, and the gold size is dry, and the loose flying pieces brush'd off, then lay on the following varnish to brighten the gold, and preserve it from rubbing.

*Varnish for gold and such leaf of metals as imitates gold.* Melt some *colophony*, and then put in 2 ounces of *amber* well-pulveriz'd, with some *turpentine*, as the *amber* thickens, stirring it well; then add an ounce of *gum-eiemi* well-powdered, and

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some more *spirit of turpentine*; still keeping the liquor stirring, 'till it is all well mix'd: but take care to use as little *spirit of turpentine* as you can, because the thicker the varnish is, the harder will it be.

Let this operation be perform'd over a sand-heat in an open glass, and strain it as directed for the former varnish.

Use this varnish alone, first warming your vessels, made of the paper paste, and lay it on with a painting-brush before the fire; and afterwards harden it by degrees at 3 several times in ovens; the first being a slow heat, the next a warmer oven, and the third a very hot one: and these vessels will look like polish'd gold.

You must observe, that those vessels, that are made with saw-dust and the gums, you may for them use a varnish, made of the same ingredients as above, excepting only the *gum elemi*; and this will dry in the sun, or in a very gentle warmth.

*To make these paper, &c. vessels of a red colour with gilded figures on them.* The vessels being prepared as before directed, with *brown-paper paste*, and after they are dried, &c. as directed for the first, mix some *vermilion* with the varnish first directed, and use it warm; then stove it, or harden it by degrees in an oven, and it will be extremely bright; or else lay on the first ground with *size* and *vermilion*, and with *gum-arabick water* stick on in proper places some figures, cut out of prints, as little sprigs of flowers, or such like; and when they are dry, do them over with gold size, and let them remain 'till it is a little sticking to the touch. Then lay on the gold, and let that be well clos'd to the gold size, and dried; then if you have a mind to shade any part of the flower, trace over the shady parts on the leaf gold with a fine camel's-hair pencil, and some ox-gall, and then paint upon that with deep *Dutch pink*; and when that is dry, use the varnish in a warm place, (*i. e.* that varnish directed for the covering of gold) and when you have done, set it to harden by degrees in an oven. This varnish will secure the leaf gold, or *German metal* from changing, by keeping the air from it.

*The method of silvering these JAPAN vessels.* After the vessels have been made, and are thoroughly dried, do them over with size, and with ground chalk or whiting; let them stand by 'till they are very dry, and then paint them over again with the brightest gold size you can get, (for there is a great deal of difference in the colour of it; some of it is almost *white*, and other *yellow*; the latter is proper for gold, and the former for silver.) When this size is almost dry, lay on the leaf silver, and close it well to the size, brushing off the loose parts, when 'tis dry, with some cotton.

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When you lay on your leaf-silver or leaf-gold, keep it free from the air; for the least motion of the air will rumple the leaves, and they will not lie smooth, then use the following varnish to cover the silver.

*To make the varnish to cover the silver.* Melt some fine *turpentine* in a well-glaz'd pipkin, then take an ounce and half of *white amber* well-pulveriz'd, put it by degrees into the *turpentine*, stirring it well, 'till the *amber* is all dissolv'd, then put to it half an ounce of *sarcocolla* powdered, and half an ounce of *gum elemi* well levigated; pouring in at times more of the *turpentine* spirit, 'till all is dissolved. Let it be done over a gentle fire, and keep stirring the mixture continually, while it is on the fire.

This varnish will be as white and strong as the former, and must be us'd warm, and is as strong as that which is laid upon gold; and is to be afterwards hardened by degrees in an oven, as the gold varnish, and the vessel will look like polished silver.

*Directions in colouring draughts or prints of birds, flowers, &c. in japanning these vessels.* If the prints or drawings of flowers be in black and white, if the center of the flower is rising, you must touch the edges of the lights with a thin tincture of *gamboge*, and lay on some *Dutch pink* or gall-stone, over the shades, so as to run into the lights a very little.

This is to be done because the thrums in the middle of flowers are generally yellow; but if of any other colour, as sometimes blue, &c. sometimes lighter, and sometimes darker; then touch the verges of the lights with a little *ultramarine blue*, and over the shades either some *sanders blue*, to run a little into the *ultramarine*, or else shade with *indigo*; and some of the white of the print being left void of colour, will then give life and spirit to the colours so dispos'd.

All flowers should be tenderly touch'd in the light, just to give a little glare into the light parts of the colour you would give to the flower-leaves; and if you paint by a natural flower, you will presently see, that on the shady side, you must lay on the most shady part, such a colour as will force the rest to appear forward: but do not daub over the shades with too heavy a colour; let it be such as may be transparent, if possible, and scumble it into the light colour, that was laid on before. On this occasion the pencil must be us'd but lightly, with a very little gum-water in it, and it must be us'd before the colours are quite dry.

In painting the leaves of plants and herbs, regard must be had to the colours of the greens; that sometimes being the chief distinguishing character.

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Of greens, *verdigrease* is the lightest; therefore that colour should be touch'd into the light parts of the leaf, from the place where the lighter parts of the shades end: and then on the shady parts, lay on some sap-green, so as to unite with the *verdigrease* green; and if the natural leaf should be of a darkish colour, touch the lighter sides of the leaves with a little *verdigrease* green, and *Dutch* yellow pink, mixt together, or with a tincture of *French* berries, but so as to let the *verdigrease* shine more than the *pink*.

The leaving the lights in colouring a print, has two advantages, *viz.*

If the lights be left on this occasion, the whiteness of the paper serves instead of the use of *white* paint, which is an heavy colour, and would rather confound those that have been prescrib'd to be laid on, than do them any service; but the colours before directed, where there is no white laid on, will shine agreeably into the white of the paper.

I am the more particular in this, because some persons will lay a blue flower, all over with one colour, tho' it be thick enough to hide both the lights and the shades; and then it will look like a penny picture, where there is nothing but a jumble of *reds*, *blues*, and *greens*.

In such pieces of work, be sure to scumble the lights into the shades of every colour, and leave the middle of the lights open on the papers; for as the paper is white of itself, it makes a light.

Of laying SPECKLES or STREWINGS on JAPAN work.

1. To do this either on the out or insides of boxes, drawers, &c. mix your *speckles* with *ordinary lac-varnish*, so much as may make it fit to work, but not so thick as for colour; and mix them well with a proper brush.

2. Warm the work to be done gently by the fire, and with a fit pencil wash it over with the former mixture; and when it is dry, repeat it again, and so often 'till your *speckles* lie as thick and even as you desire.

3. When it is thoroughly dry, go over and beautify the work 3 or 4 times with *seed-lac varnish*, mixt with *turpentine*, and so let it dry, and the work is finished, except you have a mind to polish it.

4. But if you polish it, then you must wash it 8 or 10 times over with the best *seed-lac varnish*, letting it stand to dry every time, and afterwards polish it as before directed.

5. All sorts of colour'd *speckles* may be thus used, except those of silver, the laying on of which, requires the best and finest of the *seed-lac varnish*, or the best *white varnish*, which must

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must make it fit for polishing; but if you have not a mind to polish it, fewer washes of the varnish will be sufficient.

*To lay speckles on the drawing part of Japan work as on flowers, herbs, trees, fowls, beasts, rocks, garments, &c.*

To do this, make a tiffany sieve of a wooden pill-box, by striking out bottom and top, &c. then with your varnish and pencil strike over the places you would speckle.

1. When you have done this, before it is dry, put some of your *speckles* into your sieve, and gently shake the sieve over the places you design, 'till they are all speckled according as you would have them.

2. *But for rocks*, with a dry new pencil sweep all the straggling *speckles*, which lie beyond the wet parts, into and upon the sides and top of the rock; which will render the work not only thicker of *speckles*, but also more beautiful, and give it a kind of shadow and reflexion.

3. As soon as one part is compleated, you must proceed to another, but not before the other is perfectly dry; *rock-works* also ought to be of different colours, and as many shapes, 'till the whole design is finish'd.

4. Your work being cold, it will certainly for the present look dull and cloudy; and as if very ill done, or with ill materials, without either life or beauty: but be not discourag'd if so, for it will in a little time obtain its lustre and glory, and by *securing varnish* be made firm and durable.

*Of JAPANNING metals with gum-water.* You are to take notice, that it is only to be done with these colours, which have a body; not with transparent colours.

1. Take *gum-water*, put it into a muscle-shell, with which mix so much of your metal or colour, as may make it neither too thick nor too thin, but that it may run fine and smooth from the pencil.

2. Mix no more at a time than is sufficient for your present use; for they will spoil by being kept mixt.

3. And for your colours, your shells must be often shifted and changed; for otherwise the colours and gums will become knobby, thick, and out of order.

4. Having prepar'd and well-mixt your metals and colours, lay on your design with a hog's-brush pencil, with a smooth and even hand, drawing the pencil on the side of the shell, that it may not be overcharg'd with the colour or metal, when you are about to draw small lines or strokes.

5. But where you draw broad things, as leaves or other large works, then you may charge your pencil-full, but yet not so full as to drop.

6. *Now here it is to be noted;*

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1. That the practice of *gum-water* is useleſs and unneceſſary in the uſe of gold ſize.

2. That your gum-work being thoroughly dry'd, you are to run it over 8 or 10 times with your fine *ſeed-lac varniſh*, or *beſt white varniſh*; and afterwards poliſh it and clear it.

7. The *black* or *ground* on which your draught is to be made, when clear'd up, will be ſo gloſſy, as if it were greaſy, ſo that the metal or colour will not eaſily ſtick on; and for this reaſon you ought to rub it with a *Tripoli* cloth, and ſuffer it to dry; and ſo will the draught of the pencil be ſmooth, and ſtick on as you would have it.

8. If *your work with gum-water ſhould not ſucceed to your ſatisfaction*, as not being even and regular, or the lines at a true diſtance, (as it may ſometimes happen to young beginners) you may with the *Tripoli* cloth wipe out all, or any part of that, which you think unhandſome, or unfit to ſtand, and then immediately make a new draught.

9. And ſo by this method you may mend, alter, add, take from, blot out, change, and variously contribute to your deſign, 'till the whole piece is as perfect as you would have it.

To JAPAN BRASS, ſuch as is uſ'd to gild braſs buttons, or make them look like gold.

This may be uſ'd upon leaf-gold, or upon what is called the *German* leaf-gold, or upon *braſs*, or upon *Bath* metal, which are deſign'd to imitate gold.

Take a pint of *ſpirit of wine*, and put it into a retort-glaſs, then add a quarter of an ounce of *gamboge*, half an ounce of *lake*, and half an ounce of *gum-maſtick*; ſet this in a ſand-heat for 6 days, or near the fire, or put the body of the retort frequently in warm water, ſhaking it twice or thrice a day; then ſet it over a pan of warm ſmall-coal duſt; and having firſt well-clean'd the metal, do it over thinly with this varniſh, and it will appear of the colour of gold; it may be dried in a declining oven, and it will not rub off.

N. B. *This is a good varniſh to mix with any colours that incline to red, and the white varniſh to mix with thoſe colours that are pale, or of any other ſort.*

JARGONS of Avernia, to make thoſe red that are of a *gridelin* colour.

Theſe JARGONS are little ſtones commonly found in that country, and ſeveral other places in *France*.

They are red and ſhining like the *ſacynth*, which has gain'd them the name of falſe *ſacynths*, becauſe they much imitate that precious ſtone.

But there are many of theſe ſmall ſtones found, which are not of a *red* colour, but a kind of a *gridelin*.

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To these you may give a red tincture, with as much ease as you can take it away from the other, to convert them into diamonds.

To give a *red* colour to *Fargons*, that are of a *gridelin*, you must take equal parts of purified *sal-armoniac*, and of *tartar* calcin'd to whiteness, as is shewn elsewhere; mix these matters well in fine powder; then stratify the *Fargons* in a crucible, layer upon layer, beginning and ending with the powders.

Then put the crucible in a good coal-fire, but not hot enough for the stones to melt; but only to grow red-hot, that they may be the better penetrated by the tincture the materials will give it. Then let it cool; and by this method they will take as fine and shining a red tincture, as the true and finest natural *Fargons* of this colour have.

*The way of extracting a tincture of JARGON de Auvergne, and to make very fair and hard diamonds of them.*

These stones may be made white and hard like true *diamonds*, by taking away their tincture, which is no despicable secret; there have been *rose-diamonds* made of them so fine, that the best goldsmiths have been mistaken in them, and thought them true diamonds.

These *Fargons* must be boil'd in a *balneum* of mutton-suet, wherein they will lose all their red colour, and become white.

Then take equal parts of *emery* of *Spain*, *rock-crystal*, *pumice-stone*, and sulphureous *Tripoli*, the whole reduc'd into fine powder, and searced through a fine sieve; make a paste of it with *aqua-vitæ*, and with this cement your *Fargons* in a large crucible, layer upon layer, then cover with another, and lute them well, then set it in a furnace over a gentle fire for half an hour; then augment your fire 'till it be hot enough for fusion, in which leave the whole for 14 hours: then let the fire go out, and the crucible cool of itself, wherein, after you have broke it, you will find your stones of a very fine diamond colour, hard, shining, and sparkling, like the true ones, which you may have polish'd and work'd up.

This sulphureous *Tripoli*, which enters into the composition of this paste, being not commonly known, I shall shew the way of making it, as follows.

Take equal parts of *Tripoli*, *crude antimony*, and *common sulphur*, and grind them to fine powder on a porphyry-stone, and make them into a paste with *vinegar*, which when it is dry, will easily crumble.

This is the sulphureous *Tripoli*, made use of for this purpose.

Some persons in taking away the colour from *Fargons*, and giving them the hardness and whiteness of *diamonds*, have made use of *barley-meal*, making a paste with it, and distill'd vinegar,

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impregnated with lead, with which they stratify the stones or *Jargons* in a crucible, covered with another, and well luted; which they afterwards put in a gradual, round, or wheel fire for 6 hours. But this way they could not give them the true *diamond* colour.

Some also stratify their stones with pounded coal, which they put in a crucible, covered and luted, which they set on the fire for 6 hours, so that the crucible be always red-hot.

But this way is not to be approv'd, because the coals may dry the humour of the stone, and calcine it.

*To turn JARGONS into DIAMONDS.* Here I give another way of making precious stones much harder, there being no *Saturn* employ'd therein, which always makes stones softer and heavier, what preparation soever you use of it.

Here I shall direct to the use of only natural *crystal*, and some materials added to it, to give it the colours of all sorts of precious stones.

Also in the composition of the materials of these Gems, fine and pure salt of *tartar* prepar'd, which is to open the crystal, and make it the better imbibe the colour of the tinctures given to it, which will make the stones appear more fine and shining.

To prepare the *crystal*, you must first calcine it, that is, by heating it red-hot in a crucible, and quenching it often in cold water, changing the water each time.

But instead of grinding to an impalpable powder on marble, you must pound it in a brass mortar, with a pestle of the same, and not use either iron or marble, and then the crystal is to be searced through a fine sieve: and this is the basis of gems in general.

**JASPER** is a precious stone, that does not differ much from the *Agate*, excepting that it is softer, and does not take so good a polish.

In some *Jaspers* nature has amus'd herself, in representing rivers, trees, animals, landskips, &c. as if they were painted.

The *florid Jasper*, found in the *Pyreneans*, is usually stain'd with various colours; tho' there are some which have but one colour, as *red* or *green*; but these are the least valuable.

The most beautiful is that bordering on the colour of *laque* or *purple*; next to that, the *carnation*: but what is now usually taken, is *green* spotted with *red*.

**JASSEMIN**, [in *miniature*,] cover it with a lay of *white*; shaded with *black* and *white*. For the outside of the leaves add a little *bytre*, giving the half of each on that side a faint reddish cast of *carmine*.

J. B. signifies *James Binchius*.

J. B. and a bird, is another different mark of a different Author in a *David*, who sets his foot on *Goliath's* head, after *Albert Durer's* manner.



# J E A

J. BONASO F. 1544.

J. B. F.

JULIO B.

} stands for *Julio Bonasoni fecit.*

J. B. M. signifies *John Baptista of Mantua*, who was scholar to *Julio Romano*; he engrav'd the burning of *Troy*, and other pieces of his own invention.

J. B. F. stands for *James Belli, a Frenchman, fecit, or Belli fecit.*

J. C. *inv.* signifies *Julius Cæsar Procaccinus inventor.*

ICONOGRAPHY. Description of Images, or of antient statues of marbles and copper, of busts and semi busts, of paintings in fresco, mosaic works, and antient peices of miniature.

ICTHYOCOLLA, *ising-glass*: *Schroder* tells us, it is made from a fish, which is common in the *Danube*; the fish having no bones but about the head.

After it is cut in small pieces, they boil it in water to a thick jelly, which is spread abroad and dry'd, then roll'd up, and brought to us in the form we see it in the shops.

IDEA, is represented [in *Painting, &c.*] by a beautiful lady, rapp'd into the air, covering her nakedness only with a fine white veil; a flame on her head, her forehead surrounded with a circle of gold, set with Jewels; she has the image of nature in her arms, to which she gives suck, and points at a very fine country underneath.

She is in the air, because immaterial, and consequently immutable; naked, exempt from corporeal passions; the white veil doubles the purity of Ideas, differing from corporeal things; the golden circle denotes the perfection of ideas, being the model of all things; the country pointed at, the inferior sensible world.

IDOLATRY, is represented [in *Painting, &c.*] by a woman blind, upon her knees offering incense to the statue of a brazen bull.

Blind, because she does not rightly perceive whom she ought principally to adore, and worship; it needs no farther explanation, for all those acts of adoration she blindly renders to creatures, whereas she ought to adore her creator only.

JEALOUSY. This passion wrinkles the forehead, the eye-brows are sunk down and knit, and the eye-ball is half hid under the eye-brows, which turn towards the object; it should appear full of fire, as well as the white of the eye, and the eye-lid; the nostrils are pale, more open, and more mark'd than ordinary, and drawn backwards, so as to make wrinkles in the cheeks. The mouth is so shut, as to shew that the teeth are closed; the corners of the mouth are drawn back, and very much sunk down; the muscles of the jaws appear sunk; the colour of the face is partly inflam'd, and partly yellowish; the lips pale or livid. And thus it must be describ'd in drawing, &c.

JEAT, sometimes call'd *black amber*, is a mineral, or a fossile stone, extremely black, formed of a lapidific, or bituminous juice

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juice in the earth, in the manner of coal: it works like amber, and has most of its qualities.

It abounds in *Dauphiné*; but the best in the world, is said to be produc'd in some of the northern parts of *England*.

There is also a factitious jeat made of glass, in imitation of the mineral jeat.

This is drawn out into long hollow strings, which are cut, and form'd at pleasure. It is much us'd in embroideries, and in the trimmings of mourning, and may be made of any colour, tho' they are usually black and white.

J. G. *Van Uliet*, is the same as *James Grandehomme*.

IGNOBLENESS, is represented [in *Painting*, &c.] by a woman in a short garment, because it was permitted to none but noble women, to wear long robes. Her hair uncombed, denotes low plebeian thoughts, that never rise to any thing considerable; her assed ears, that she is indocile; an owl on her head, which differs from the ordinary birds, and their species, in not being known; as the plebeian has no pedigree: her sweeping with a broom shews, that the vulgar are employ'd in servile things, not capable of divine, moral, or natural ones.

J. H. stands for *Ferom Hopfer*.

J. K. stands for *James Kewer*.

J. L. *fec.* signifies *Johannes Livius fecit*. He engrav'd after *Rembrant's* manner.

I. M. stands for *Israel Meck* in certain subjects of the passion, and other plates, see I. V. M. The same mark was also us'd by *Israel Martino*, suppos'd to be the same with *Bon Martino*, who liv'd in 1490.

IMITATION, is represented [in *Painting*, &c.] by a woman holding pencils in her right hand, a mask in her left, and an ape at her feet.

The pencils are the instruments of the art that imitates colours; and the figure produced by nature, or by art itself; the mask and ape demonstrate the imitation of human actions; the ape imitates men, and the other the deportment of men upon the stage.

IMPERIAL LILLY [in miniature] this flower is of 2 colours, viz. yellow and red, or orange colour.

Colour the first with *orpiment*, and shade with *gall-stone* and a little *vermilion*.

Cover the second with *orpiment* and *vermilion*, and shade with *gall-stone* and *vermilion*, doing the beginning of the leaves, next to the stalk, with *lake* and *bytre* very deep, and all veins of this mixture along the leaf.

Do the green with *verditer* and *masticole*, shaded with *iris* and *gamboge*.

IN-

## I N D

**INCONSTANCY**, is represented [in *Painting*, &c.] by a woman all in blue, setting her foot upon a great crab ; like the *cancer* in the zodiac ; with the moon in her hand. The crab denotes irresolution, it going sometimes forward, and sometimes backward : so do fickle men. The moon, changeableness, never remaining for one hour the same. The blue resembles the colour of the waves of the sea, which are extreme inconstant.

*How to draw with INDIAN INK.* This is to be done after the manner of washing, or instead of *Indian*, you may temper *lamp-black* or *burnt bread*.

Temper either of these in fair water, in a shell, or upon your hand ; and the out-lines having been first drawn with a coal or black lead, dip the point of an indifferent sharp pencil into fair water, and then into the *indian ink*, and draw all the outlines of your picture very faintly.

2. Take notice, that all the temperature of *Indian Ink* must be very thin, waterish, and not too black.

3. When it is dry, rub out the out-lines, which you drew with the coal, with a bit of stale white bread ; if too black, then dash on your shadows very faintly, and deepen by degrees, at pleasure ; and finish it with stipples, it being most advantageous to any one who shall practise limning.

4. Be sure not to take too much ink in your pencil, which you may prevent by drawing it thro' your lips.

5. Never lay your shadows on too deep, but deepen them down by degrees ; for if they are too deep, they cannot be heightened again.

**INDIAN RED**, is a colour of a body ; yet is useful for a back-ground for flowers, at a distance, being used with gum-water.

There is also an earth brought from the *Isle of Wight*, which has been found to mix extremely well with gum-water ; tho' it being of a viscous nature, it requires less gum than most other colours, and as it is naturally fit for use, without grinding, and is viscous, so it will, without doubt, mix with *oil*, as well as with water.

There is one thing very extraordinary in this earth, *i. e.* that if you rub a deal-board with it, it makes it exactly of the colour of *mohogany* wood, and stains it so deep, and with so much strength, that it is hard to get it out with washing.

And tho' the earth is very dry, yet it has not been able to be got out of papers, in which it has been carried in a pocket.

**INDIAN BEAN**, to paint (in miniature) shade the middle leaves with *lake* only ; and add to it a little *ultramarine* for the rest : as for the *green*, *verditer*, and shade with *Iris*.

**INDIAN WOOD**, call'd also *Jamaica* and *Campeche wood*, is taken out of the heart of a large tree, growing plentifully in the  
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isles of *Jamaica*, *Campeche*, &c. It is used in dying; its decoction is very red; and it has been observ'd, that putting some of this decoction into 2 bottles, and mixing a little powder of *Alum* with the one, it will become of a very beautiful red, which will hold; the other in a day's time becoming yellow, tho' both bottles were stopp'd from the air alike; and if a little of the same decoction were expos'd to the air, it would become as black as ink, in the same space of time.

INDIGO, a drug of a deep *blue* colour, brought hither from the *West-Indies*.

It is made of the leaves of a plant, call'd by the *Spaniards* *Anil*, and by us *Indigo*.

The method of preparing it is as follows;

When the plant has grown to a certain height, and its leaves are in a good condition, they cut down, and throw it into a kind of vat, putting to them as much water as will cover them.

These are boil'd together for the space of 24 hours; and at the top swims a scum, with all the different colours of the rainbow.

Then the water is let off into another vessel, where they agitate it, and stir it about laboriously, with five or six poles fitted for that purpose. This they do till the water becomes of a deep green, and till the *grain* (as they call it) forms itself; which they discover, by taking a little of it out into another vessel, and spitting in it; for if then they perceive a blueish dreg subsiding, they cease beating it. The matter then precipitates of itself, to the bottom of the vessel; and when it is well settled, they pour off the water.

After this, they take off the *Indigo*, and put it into little linnen bags, and let it drain; this done, they put it into shallow wooden boxes, and when it begins to dry, they cut it into slices, and set them to dry and harden in the sun.

There are several sorts of *Indigo*, the best is that call'd *Serquisse*, after the name of a village where it is prepar'd.

We chuse it in flat pieces of a moderate thickness, pretty hard, clean, light enough to swim in the water, inflammable, of a fine blue colour, marked a little on the inside with silver streaks, and appearing reddish when rubb'd on the nail.

Indigo is us'd by Painters, who grind and mix it with white, to make a blue colour; for without that mixture, it would paint blackish.

It is also mix'd with yellow, to make a green colour. It is also us'd by dyers.

*To prepare for the INDIGO Dye.* You must first have the ground of a dye, which is to be put into the kettle, and made as warm as you can bear it; and afterwards prepare a lye of pot-ashes.

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The kettle must be first fill'd with water and made to boil, then the pot-ashes are to be put in; boil them, and then put in a bowl-full of *bran*, and three handfulls of *madder*; boil them all for a quarter of an hour; then remove the fire, and pound the *Indigo* in a mortar to an impalpable powder, and pour some of the lye upon it. Let it stand to settle, and then pour some of the *Indigo* dye into the blue dye copper, and proceed thus, till the proper quantity of *Indigo* is turn'd into the dye: then beat what remains a second time, and let it stand to settle, and pour the lye into the blue copper, repeating this till you have turn'd a proper quantity of *Indigo* to lye, which must all be poured into the copper, then you must proceed to dye your stuffs, &c.

*The Indigo dye.* Allow to every quarter of a pound of *Indigo* a pound and a half of *pot-ashes*, and a quarter of a pound of *madder*, 3 handfulls of wheaten bran, boil these for 7 or 8 minutes, and then let it stand to settle; pour off the clear part of the suds or liquor, and pound the *Indigo* very fine, and mix it with a sufficient quantity of fresh *woad*, or stale *Indigo*, and then pour the suds upon it, and let it boil for 24 hours, and it will be ready to dye withal.

*To prepare the dye copper.* First throw in a pint of *wheaten bran*, next to that the *woad*, and after that, 2 pound of *madder*, then fill the copper with water, and make it boil for 3 hours; then pour it off into the vat, and let it stand till it is of a due consistence; then boil the copper full of water, and pour it into the dye suds, and cover it up warm; let it stand 2 hours to settle, and look upon it every hour, till it becomes blue.

Then, according to the quantity of stuffs to be dyed, put in 3 or 4 pound of *Indigo*, and 3 pound of *pot-ashes*, let it stand to settle and dye with this liquor; taking care always to stir it; cover it close, and let it stand 2 hours after every time you have dyed with it: after which time you may dye with it again, adding a sufficient quantity of *lime*, if you use it often, always letting it stand 2 hours, and then adding *lime* and stirring it.

*How to prepare the INDIGO dye for the lye, in conjunction with the Provence BLUE, and make it lasting for stuffs, silks, woollen, and linnen.*

If the ware is to have a deep dye, you must first prepare it in *tartar* and *vitriol*; but if of a light dye, in *alum* and *tartar*.

Boil 3 pound of *brown wood* in a bag, in a kettle of water, for half an hour, then take it out and dry it, and let the dye grow cool enough for you to bear your hand in it; then make use of your *Indigo* and *Ashes* (as in the direction for the blue dye) with all the rest of the useful and remedying drugs, from beginning to the end, as there directed.

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When the blue dye has stood 24 hours, and the Indigo has come to its perfect strength, and begins to be blue, first dye what you would have of a deep blue, and the lightest last: and having work'd the dye half an hour, let it rest for an hour, and so on as long as you work it.

If the lye be too weak, you may strengthen it at pleasure.

*The way of mixing the Provence blue with woad for silk, wool-len, and linnen ware ; and to improve the BLUE.*

It requires 3 waters to prepare the woad, and if you would use the *Provence blue* with *woad* and *indigo*, no *brown wood* is to be put in the first water, and then you must consider how the woad comes from the lye.

For the second water ; boil a pound of *brown wood* in a bag ; to be sure taking care that there be no *bran* in the water.

For the third water, use a pound of *brown wood*, but if you would have the dye deeper, then make your dye deeper in the first operation.

*To dye linnen thread BLUE.* For every 6 pound of thread, take half a pound of *Alum*, 5 ounces of *tartar*, 2 quarts of sharp lye, set it over in the fire, and as soon as it boils, put in the thread, and let it soak there for 4 hours ; then rinse or pass it through fresh water.

*And afterwards dye it blue.* Take a pound of boiled *brown wood*, 3 quarters of an ounce of *verdigrease* powdered, one quart of sharp lye, the galls of 2 oxen or cows, half an ounce of calcin'd *tartar*, half an ounce of calcin'd white *vitriol* ; put in the thread at twice, so that you may dye it light or deep at pleasure ; and then the thread having first lain two hours in the woad lye, must be rinsed clean out.

If it be put into this lye when it is cold, it becomes much brighter and bluer, than if put in when boiling hot ; but the most lasting dye for thread is perform'd with woad.

But if you would dye in the *Indigo* copper, you are not to use the same *preparation suds*, as in this dye, and the colour will be durable.

And lastly, the thread dyed with *Indigo*, ought to be rinsed through warm water, in order to give it the better lustre.

INDOCIBILITY, is represented [in *Painting*, &c.] by a woman of a ruddy complexion, lying all along, holding an ass by the bridle, the bit in his mouth, in one hand, and leans her elbow of the right arm upon an hog on the ground, a black hood on her head.

On the ground signifies her indocility, not being able to rise higher, but stands still ; her ignorance is imitated by the ass. The hog denotes insensibility and stupidity, never being good till dead. The hood intimates, that black never takes any other colour.

IN-



# I N K

INDUS, the River, is painted with a grave and jovial aspect, crowned with a garland of its country flowers, by its side a camel (from *χάμαι*) it is represented pleasantly grave; as an emblem of the *Indian* policy.

This is said to be the greatest river in the world, receiving into its chanel 60 other great and famous rivers, and above 100 lesser.

INGENUITY, is represented [in *Painting*, &c.] by a young spark of a vehement daring aspect; with a helmet, whose crest is an eagle's wings of divers colours on his shoulders, with a bow and arrow, as if he would let fly.

This youth shews that the intellect never grows old; his aspect, strength and vigour; the eagle, generosity and loftiness; the bow and arrow, inquisitiveness and acuteness.

INJUSTICE, is represented [in *Painting*, &c.] by a man in a white garment full of spots; a sword in one hand, and a globe in the other; the tables of the law all broken to pieces on the ground; blind of the right eye; trampling on the balance. The garment denotes injustice to be the corruption and stain of the mind; the laws broken, the non-observance of them, being despised by malefactors; and due weighing of matters neglected, is intimated by the balance. The blind eye shews that he sees only with the left, that is, what is for his own interest.

INK, *a very good Black for Writing*. Take *rain water* two quarts, *nut galls* only broken into bits half a pound, *copperas* 4 ounces, *alum* 4 ounces; infuse all in a gentle heat for a month, add *gum Arabick* 4 ounces, which dissolve in it, and keep the mixture for use.

*Another black writing INK.* Take *rain-water* 2 quarts, *nut-galls* broken into little bits 4 ounces; digest them in a sand-heat for a week: then dissolve 2 ounces and a half of *vitriol* or *copperas* in a pint of rain water by boiling it gently; adding in the dissolution a little *gum Arabick*: being dissolved, mix it with the water and galls; digest in a sand-heat for a week; and keep the clear for use.

*Another very good INK for writing*. Take ponderous galls, 3 ounces, reduce them to powder, infuse them in 3 pints of rain-water, setting it in the sun or a gentle heat for 2 days; then take common or *Roman vitriol* 3 ounces, powder it, put it in, and set it in the sun for 2 days more, shake it well, and add an ounce of good *gum Arabick*.

*Another good black INK*. Take 3 pints of rain-water, 3 ounces of nut-galls broken into little bits, digest them in a sand-heat for a week, then add 2 ounces of copperas or vitriol to a pint of rain-water, boil it gently till it is dissolved, adding to the dissolution a little *gum Arabick*, which, when it is dissolved,

# I N K

solved, mix it with the water and galls; digest it for a week in a sand-heat, and keep the clear for use.

*Another black writing INK.* Take white wine 2 quarts, *log-wood* ground, or shavings of it, one pound: boil them till a quart is consumed; then strain the liquor from the wood, and put into it 8 ounces of nut-galls bruised, *pomegranate* peels 4 ounces; mix and digest in a sand-heat for a week, shaking it 4 or 5 times a day: then add to it 4 ounces, of *roman vitriol* or *green copperas*, and digest it 2 days more; after which, add *gum Arabick* 4 ounces; digest 24 Hours, and strain all out into another vessel, and keep the Ink for use.

*Note, 1.* That the *fæces* will serve again for the same quantity of liquor or logwood Infusion.

2. That rain-water seems to be better for this purpose than white wine.

3. That probably the quantity of *gum Arabick* is too much.

*Another very good black writing INK.* Take strong stale beer half a gallon (or white or red wine the same quantity) old nails 3 or 4 pounds; digest in a cold place for 8, 10, or 12 months; then decant off the clear liquor or tincture. Take *Catechu* in fine powder 3 ounces, common brandy half a pint, mix, and in a sand-heat make a strong tincture, which decant: mix this with the former tincture, and it becomes a black Ink.

*Another very excellent black writing INK.* Take water in which a large quantity of old nails has lain for a year or two, a gallon, nut-galls broken into little bits a pound; common vitriol or copperas 4 ounces; infuse all together for a month, stirring or shaking the vessel very well 5 or 6 times every day.

Then add *gum Arabick* cut into bits 2 ounces; dissolve and keep it continually stirring once or twice every day.

*Note,* When you use it, you may put in a little white sugar-candy, and dissolve it, so will your writing shine; but it ought not to be put in, but as you have occasion for it; for after 3 or 4 days it spoils the Ink.

*Another very good black INK.* Take *Thames* or rain-water 2 quarts, nut-galls only broken into small bits half a pound; copperas 2 ounces; infuse all in a gentle sand-heat for 6 weeks shaking the bottle 4 or 5 times every day; then dissolve in it 4 ounces of *gum arabick*, (or less may be better) and let it stand upon the *fæces* for use.

*To make the L O N D O N Powder INK.* Take 10 ounces of the clearest nut-galls, bruise them and sift the powder very fine; then add 2 ounces of white *copperas*, 4 ounces of *Roman vitriol*, *gum Arabick* or *sandarach* an ounce; pound and sift them very fine, so that though they appear white, a little of it being put into water, it will in a little time turn black; and an ounce of powder will make a pint of very black Ink. *To*



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*To make JAPAN, or shining INK.* Take *gum Arabick* and *Roman vitriol* of each an ounce, galls well bruised a pound, put them into *rape vinegar*, or *vinegar* made of clear small beer; set them in a warm place; stir them often till the liquor becomes black; then add to a gallon an ounce of *ivory black*, and a quarter of a pint of *seed-lac* varnish, and it will be a curious black shining Ink.

*To make a POWDER INK, to rub on Paper.* Take about 20 nut-galls, reduce them to a very fine powder; take half an ounce of *Roman vitriol*, and as much *gum Arabick* and *gum sandarach*, powder and sift them very fine, then mingle them together, and rub the paper hard with a piece of cotton, and polish it with a piece of ivory; write with water, and in a little time the letters you write will appear a fine black, as if written with the best Ink.

*To make China INK.* Take *lamp-black* purified 8 ounces, *indigo* 2 ounces, *ivory black* one ounce, *peach-stone black* half an ounce: beat all together, and make a mass; make it into a paste with *water* in which a very little *gum Arabick* has been dissolved; and so form them into long square tablets.

*A shining Japan or China INK.* Take an ounce of *lamp-black*, and clarify it in an earthen pipkin to take out the dross, 2 drams of *indigo*, half a dram of *peach black*, one dram of *black endive* burnt; reduce them to a very fine powder, and then with a moiety of fig-leaf water, and another part of *milk*, and a very little *gum Arabick*, when they are well mixed, make them up for use.

*To make Indian INK.* Take horse-beans, burn them till they are perfectly black, grind them to a fine powder, and with a weak *gum arabick* water make it into a paste, which form into long square cakes.

*A black INK which vanishes in 24 hours.* Boil or digest nut-galls 24 hours, in gross powder, in *aqua fortis*, add to them *vitriol* or *copperas* and a little *sal armoniack*, and it is done: what is written with this will vanish in 24 hours.

*To make Red writing INK.* Take raspings of *Brazil* one ounce, white lead and alum of each 2 drams; grind and mingle them, infuse them in urine one pound, with 2 scruples of *gum Arabick*, or a dram at most.

*Another Red INK.* Take wine vinegar a pint, raspings of *Brazil* 1 ounce, *alum* half an ounce, infuse all for 10 days; then boil it gently, and add to it 5 drams of *gum arabick*; dissolve the gum, strain and keep it for use.

*Note,* that 2 drams of gum in some cases may be enough.

*To make Red writing INK with Vermilion.* Grind *vermilion* well upon a porphyry stone with common water; dry it  
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and

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and put it into a glass vessel, to which put urine; shake it, let it settle, then pour off the urine, and put on more urine: repeat this changing the urine 8 or 10 times; so will the *vermilion* be well cleansed; to which put glair of eggs to swim on it above a finger's breadth; stir them together, and when well settled, abstract the glair: then put on more glair of eggs, repeating the same operation 8 or 10 times also, to take away the scent of the urine; lastly, mix it with fresh glair, and keep it in a glass vessel close stopped for use; and when you use it, mix it with water or vinegar.

*To make Red Printing INK.* Grind *vermilion* very well with liquid varnish or linseed oil.

*To make a Blue INK.* Grind *Indigo* with honey mixed with glair of eggs, or glue-water made of *ising-glass*, dissolved in water and strained.

*To make Green INK to write withal.* Make fine *Verdigrease* into paste with strong *vinegar*, and infusion of green *galls*, in which a little gum arabick has been dissolved; let it dry, and when you would write with it, temper it with infusion of green *galls*, &c.

*Another Green INK.* Dissolve *verdigrease* in *vinegar*, then strain it, and grind it with a little honey and mucilage of *gum tragacanth* upon a porphyry stone.

*Another Green INK.* Boil *verdigrease* with *argol* in fair water, and then dissolve in it a little *gum Arabick*, and it will be good.

*A Green Printing INK.* Grind *Spanish green* with liquid *varnish*, or linseed oil; and after the same manner you may make a Printer's Blue, by grinding *azure* with *linseed* oil.

*An INK to write upon black paper.* Dissolve *Tin-glass*, or *Spelter*, in *aqua fortis* made of nitre and alum; precipitate with oil of *tartar*; edulcorate perfectly with fair water, and dry it in a glass *Bason*; mix this powder with gum water, and it will be white, with which you may write on black paper: and with pure white *flowers of antimony* you may do the same.

*To take INK out of printed books or pictures.* Wet a little *aqua fortis* upon it, and it will be speedily out; then wash it over with a little alum water or vinegar, and it will kill the *aqua fortis*, which otherwise will either eat the paper, or make it yellow. *Spirit of vitriol* will do the same.

INSPIRATION is represented [in *Painting* &c.] by a glittering ray in a star-light night, darting at the breast of a young man in yellow; his hair knotted, mix'd with serpents; looking up to heaven, holding in one hand a naked sword, the point to the ground, and a sun-flower in the other. The starry sky signifies the grace of GOD inspiring the mind; the hair, &c. that a

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sinner can have only brutish and horrid thoughts; looking upward, that without grace and inspiration the mind cannot be elevated above earthly things. The Heliotrope denotes that as it always turns toward the sun, so a sinner once inspired turns with all affection towards G O D.

INSTITUTION is represented [in *Painting*, &c.] by a woman holding in her hand a little basket with swallows in it; which they say is the Hieroglyphick of *Institution* among the *Egyptians*, from the benefit given to mortals by *Osyris* and *Ceres*, from whom they received the laws of living well, and the precepts of tilling the ground; *Osyris* was taken for *Jupiter*, and *Ceres* the Goddess of Corn.

*Manual* INSTRUMENTS used in *Painting*, &c. These are four; viz. the *Grinding-Stone* and *Muller*, *Pencils* and *Tables* to limn on; and little shells, gallipots, or glasses to hold your colours.

As to the *grinding-stone*, it may be of *porphyry*, *serpentine*, or *marble*, but rather a *pebble*, for that is the best of all other; the *muller* only of *pebble*, which keep very clean.

*These may easily be bought of marblers or stone-cutters in London, &c.*

As for *Pencils*, chuse those that are fast in the quills, and that come to sharp points after you have drawn them 2 or 3 times through your mouth; so that although large, their points will come to be as small as a hair, which then are good; but if they spread, or have any extravagant hairs, they are naught.

These *Pencils*, after they have been often used, must have their ends well rubb'd with soap, and be then laid a while in warm water to steep, and afterwards taken out and be well washed in fair water.

As for the *Table*, it must be made of pure fine *paste-board*, such as cards are made of (of what thickness you please) very finely slick'd, and glaz'd with a dog's tooth.

Take a piece of this paste-board of the bigness you intend the picture, and a piece of the finest and whitest parchment you can get, (virgin parchment) which cut of equal bigness with the paste-board; with thin white new-made starch; paste the parchment to the paste-board, with the out-side of the skin outwards; lay the starch on very thin and even, and being thus pasted, let it dry thoroughly: then the *grinding-stone* being clean, lay the *card* thereon with the parchment side downwards, and rub the other side of the paste-board as hard as you can, with a boar's tooth set in a stick; then let it be thoroughly dry, and it will be fit to work or limn any curious thing upon.

The shells, &c. which hold or contain the colours ought to be horse muscle-shells, which may be got in *July* about the sides of  
rivers;

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rivers; but the next to these are small muscle-shells, or instead thereof little glasses made in the same form.

Having thus prepared your table and card, lay a ground of flesh-colour before you begin your work; and this must be tempered according to the complexion of the face to be drawn.

If the *complexion be fair*, temper *white, red-lead, and lake together*; if a *swarthy one*, temper with the white and red a little fine *masticote*, or *English oker*.

But you are to take notice, that your ground ought always to be fairer than the face you are to draw; because it is an easy matter to darken a light colour; but difficult to lighten a deep one.

Having thus prepared your ground, lay it upon your card with a pencil full of colour, and rather thin and waterish, than thick and gross, and with 2 or 3 daubs of your large pencil lay it on in an instant; the quicker it is laid on, the evener the colour will lie.

Be sure that you cover rather too much of your card than too little with this prime colour; somewhat more of the card with the ground colour, than you shall employ for the face.

Then take a pretty large pillar of ivory or *cocus wood*, and before you begin to work, temper certain little heaps of several shadows for the face, which mix with your finger about the pallat.

### *The Names of the principal Instruments that are used in the Art of making Glass.* [See the Plate.]

The hollow pipe marked A serves to blow the glass; it ought to be of iron, with a little wooden handle on the top.

The rod marked B ought to be of iron, but not hollow; this serves to take up the glass after it is blown, and cut off the former, so that there remains nothing to do to it, but to perfect it.

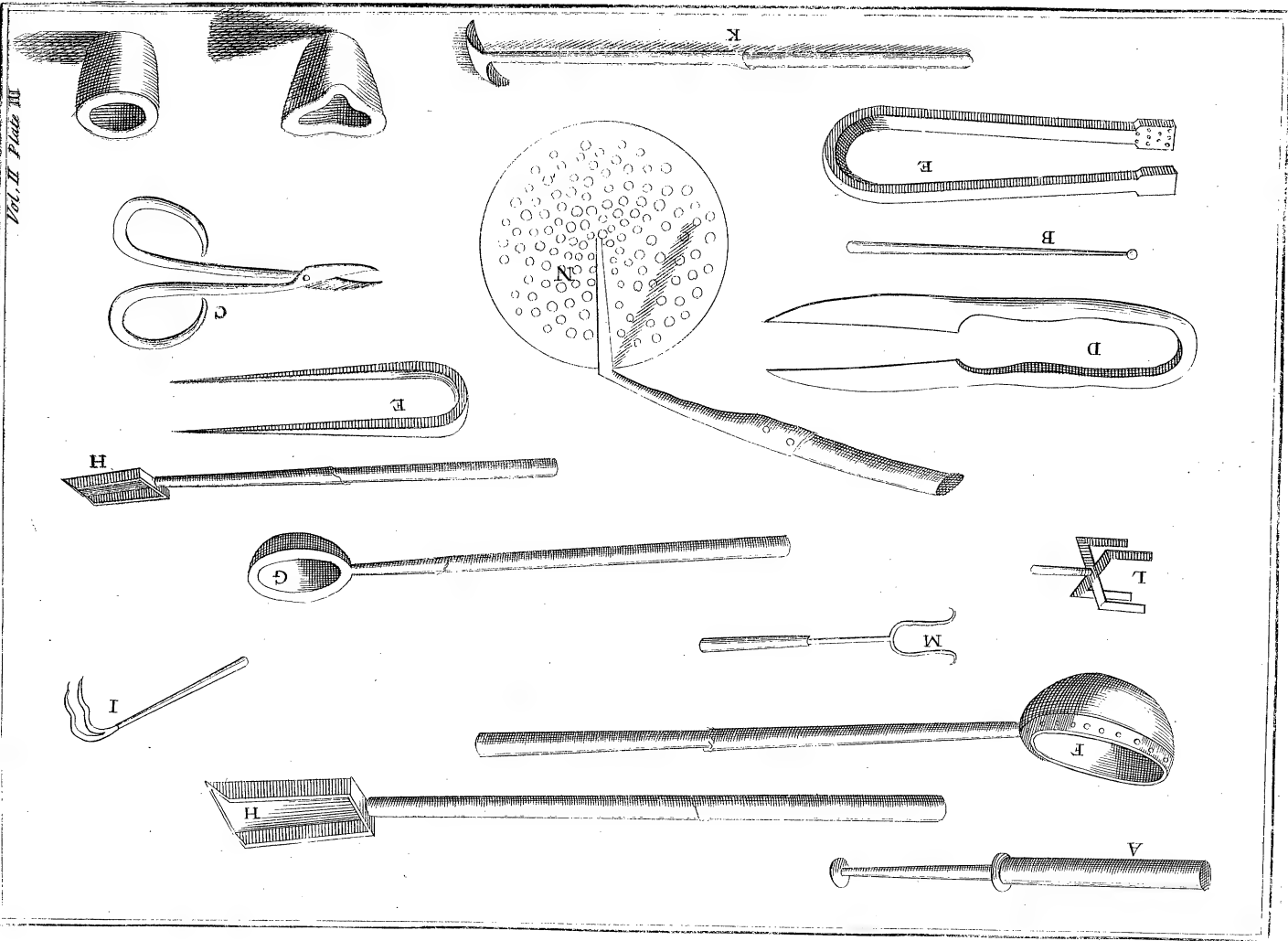
The scissors mark'd C are those which serve to cut the Glass when it comes off from the first hollow Iron, when it is given to the master-workman.

The shears marked D serve to cut and shape the great glasses, as also the lesser, to open them and make them more capacious.

The instruments marked E serve to finish the work, which the *Italians* call *Ponteglo, Passago, Procello, Spiei*, and also *Borsello*, whereof we want the figure.

The great ladle marked F is of iron, the end of the handle being only done over with wood; it is with this you take out the metal of the great pot when it is refined, and put it into the little ones for the work-men.

The little ladle marked G is also of iron, and covered with wood at the handle; this serves for skimming the metal, and taking off





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off the *Alkalick Salt* which swims on the top, as also to take the metal out of the pots, and cast it into water to refine it after a method to be hereafter treated of in its place.

The great and little shovels, or peels, marked H, and which are hollow, having the edges turned up all round except at the end, serve only to take up the great glasses. The less is called the little shovel, and they make use of one like this to draw out the coals and ashes of the furnace where the fire is made.

The hooked fork marked I serves to stir the matter in the pots; it ought to be all of iron except the handle.

The rake marked K is also of Iron, and the handle of wood, it serves to stir the matter, as also to move about the fritt in the first oven.

The instrument marked L is for making chamber-pots.

The fork marked M is made also of iron, and the handle of wood; there are of them of several bignesses, they serve to carry the glass-works into the upper oven to cool them. They make use also of forks in glass-houses, when they change the pots in the furnace.

The great ladle, marked N, is of brass, and hollow, full of holes about the bigness of a pea; its handle towards the bottom is of iron, and the top of wood. This ladle serves to take off the *Alkalick* salt from the kettles, as fast as the lee evaporates.

There are also several moulds both of marble and brass, and also of copper, which serve to make their forks of several figures, accordingly as the workman designs them in blowing, which would be too tedious here to describe.

INTAGLIO'S, are precious stones, having the heads of great men, inscriptions, and the like engraven on them; such as we frequently see set in rings, seals, &c.

INTELLIGENCE is represented [in *Painting*, &c.] by a woman in a golden crape gown; crowned with a garland; holding a sphere in one hand, and a serpent in the other.

The gown shews that she should be always splendid, and precious like gold, averse from abject notions; the sphere and serpent, her creeping along into the principles of natural things, that are more imperfect than supernatural, and more suitable to the sphere of our activity.

INVENTION, [in *Painting*, &c.] is the choice which the painter makes of the objects that are to enter the composition of the piece.

*Du Pile* observes, that *Invention* differs from *Disposition*, and that 'tis these two things together that form *Composition*.

For after having made a good choice of objects proper for the subject, they may be ill disposed, and then, tho' the *Invention*

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be never so good, the *Disposition* or ordonnance will be faulty, and the piece will displease.

Of all the parts of *painting*, *Invention* is that which gives the painter the fairest occasions of shewing his genius, his imagination, and good sense.

M. *Felibien* gives the name *Invention* to every thing that depends on the genius of the painter, as the ordonnance, the disposition of the subject, and even the subject it self when it is new.

But the term *Invention* taken in this sense is no term peculiar to painting, but agrees also to other arts.

In another place M. *Felibien* distinguishes *Invention* into two kinds, to wit, that which arises immediately from the mind of the painter, and that which he borrows from some other.

INVENTION, is represented [in *Painting*, &c.] by a woman. This mistress of arts appears in a white robe, whereon is written NON ALIUNDE; having also two little wings on her head; in one hand holding an image of nature, a cuff on the other, with the motto AD OPERAM.

Youth denotes many spirits in the brain, where invention is formed; the white robe the pureness of it, not making use of other men's labour, as the motto shews. The wings, elevation of intellect; naked arms, her being ever in action, the life of invention; the image of nature shews her invention.

JO. GUILL. BAURN, signifies *John William Baur*.

JO. AN. BX. signifies *John Antonius Brixianus*, 1538.

JOHN ab EYK, commonly call'd *John of Bruges*, the happy inventor of the art of painting in oil, anno 1410, disciple of his brother *Hubert*, excell'd in history-painting, died in 1441, aged 71 years.

CORNELIUS JOHNSON, alias JANSENS, was an excellent painter both in great and little; but above all his portraits were admirably well done. He was born in, and resided a long while at *Amsterdam*, from whence he came over into *England* in the reign of king *James I.* and drew several fine pictures after that king, and most of the court. He also lived in the time of king *Charles I.* and was contemporary with *Van Dyke*; but the great fame of that master soon eclipsed his merits, tho' it must be owned his pictures had more of neat finishing, smooth painting, and labour in drapery throughout the whole; yet he wanted the true notion of *English* beauty, and that freedom of draught, which the other was master of: he died in *London*.

MARTIN JOHNSON, the famous seal-graver, was also an extraordinary landskip painter after nature; he was bred, it's true, to graving seals, but painted in his way equal to any body; he arrived



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arrived at a great excellency in landskip views, which he studied with application, making a good choice of the delightful prospects of our country for his subjects, which he performed with much judgment, freeness, and warmth of colouring. Several of his landskips are now in the hands of the curious in *England*, tho' they are very scarce; he died in *London* about the beginning of king *James II's* reign.

**JONQUIL**, [to paint in miniature] lay on *masticote* and gall-stone, and finish it with *gambooge* and gall-stones: for the leaves and stalks use *sea-green*, shaded with *Iris-green*,

**JOVIALNESS**, is represented [in *Painting*, &c.] by a lady with a composed countenance, but somewhat wandering eyes, dressed in a light habit, with a crown of *amaranth*, holding in both hands an olive-branch with fruit, on the top of which is an honey-comb with bees.

The *amaranth* denotes stability and merriness, for it never withers. The olive and honey-comb denote mirth and long life, whereunto honey conduces.

**JOY**, is a pleasant emotion of the soul, in which consists the enjoyment of a good, which the impressions of the brain represent as hers.

If the soul be possess'd with *Joy*, the forehead is serene, and the eye-brow without motion, and rais'd in the middle; the eye moderately open and smiling; the eye-ball brisk, and shining; the nostrils a little open; the corners of the mouth are a little rais'd; the complexion lively; and the cheeks and lips ruddy. *See the plate.*

In *Joy* the pulse is even and quicker than ordinary, but not so high nor so strong as in *Love*; and one feels an agreeable warmth, which is not only in the breast, but spreads itself into all the exterior parts of the body.

**IRIS**, is represented [in *Painting*, &c.] as a nymph with large wings, extended like to a semi-circle, the plumes set in rows of divers colours, as *yellow*, *green*, *red*, *blue*, or *purple*; her hair hanging before her eyes; her breasts like clouds; drops of water falling from her body, and in her hand *Iris*, or the *Flower de Lis*.

**IRIS**, [in *Painting* and *Miniature*] is done as follows;

The *Persian* or *Indian Iris* is done by covering the innermost leaves with *white*, and shading them with *indigo* and green mixed together, leaving a small white separation in the middle of each leaf.

As to the outward leaves, you must in the same part lay on a lay of *masticote*, and shade it with *gall-stone* and *orpiment*, making small, deep, and longish dots or spots, at some small distance from each other, upon the upper side of all the leaf, and

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at the end of each leaf, make large spots of *bistre* and *lake* for some, and of *indigo* alone for others, but very deep.

The rest, and the outside of the leaves must be of the sea-sort, and *masticote*, very pale, and shaded with bladder green.

Another sort of *Iris* is laid on with *purple* and *white*, mix'd up with a little more *carmine* than *ultramarine*; and for the shades, but especially for the middle leaves, diminish the quantity of the *white*; and on the contrary, let the *ultramarine* overpower the *carmine*. And with this colour express veins, leaving a small *yellow* nervure on the inside in the middle of the leaves.

Other *Iris's* again have this nervure on the first leaves, whose end only is bluer than the rest.

Others again are shaded and finished with a redder purple, and have also a nervure in the middle of the leaves without; which is to be *white*, and shaded with *indigo*.

Some of them again are yellow, and are done with a lay of *orpiment* and *masticote*, shaded with gall-stones, with veins of *bistre* on the upper side of the leaf.

The *greens* of them all must be of the sea-colour, mix'd with a little *masticote* for the stems and stalks, and shaded with bladder green.

IRON, is a hard, fusible and malleable metal, consisting of an earth, salt, and sulphur; but all impure, ill-mixt, and digested, which render it very liable to rust.

It is the hardest, dryest, and most difficult to melt of all metals.

It may be softened by heating it often in the fire, hammering it, and letting it cool of itself; and extinguishing it in water hardens it.

It may be rendred white by cooling it in *sal-ammoniac* and *quick-lime*.

The strongest temper of *Iron* is said to be that, which it takes in the juice of strain'd worms.

A red-hot *Iron* apply'd to a roll of sulphur, will dissolve and fall into a fine dust, or drop'd into water, will compose grains, which is call'd *granulating it*.

*Iron* has a great conformity with copper; so that when soldered together, they will not easily separate.

It has also a great conformity with the load-stone. *Robault* says it is an imperfect load-stone, and that if it be a long time expos'd in a certain situation, it will become a real *load-stone*; and mentions the *Iron* in the steeple of *Notre-Dame* at *Chartres* as an instance.

There are several kinds of *Iron*, which have properties very different from one another.

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1. *English Iron*, which is coarse, hard, and brittle, fit for fire-bars and such uses.

2. *Swedish Iron*, which of all others is the best us'd in *England*. It is fine and tough, and will best endure the hammer, is softest to file, and in all other respects the best to work upon.

3. *Spanish Iron*, which would be as good as the *Swedish*, were it not subject to *red-scar*, i. e. to crack betwixt hot and cold.

4. *German Iron*. This sort is called *Dort-square*, because it is wrought into bars of 3 quarters of an inch square, and is brought to us from *Dort*. This is a coarse *Iron*, and only fit for ordinary uses.

There is another sort us'd for making of *wire*, which is the softest and toughest of all.

This last is not peculiar to any country ; but is indifferently made where-ever *Iron* is made, tho' of the worst sort ; for 'tis the first *Iron* that runs from the mine-stone, when it is melting, and is reserv'd purely for making wire.

Generally speaking, the best *Iron* is the softest *and* toughest, and that which when it breaks, is of an even greyish colour, without any of those glittering specks, or any flaws or divisions, like those seen in broken antimony.

To give *Iron* a blue colour ; with a grinding stone rub off the black scurf, then heat it in the fire, and as it grows hot, it will change colour by degrees ; become first of a gold colour, and then of a beautiful blue.

Sometimes the workmen rub a mixture of *indigo* and *fallet-oil* on it, while it is heating, and let it cool of itself.

IRON-ORES } Of these we have a great number in most  
IRON-WORKS } parts of *England* ; but those in the forest of *Dean* in *Glocestershire* are in the greatest repute, the ore is there found in great abundance, differing much in colour, weight, and goodness.

The best, which is called *brusb-ore*, is of a bluish colour, very ponderous, and full of little shining specks like grains of silver ; this yields the greatest quantity of *Iron*, but being melted alone, produces an *Iron* very short and brittle, and therefore not so fit for common use.

For the remedying of which, the workmen make use of another sort of material, which they call *cinder* ; which is nothing but the refuse of the *ore*, after the metal has been extracted ; and which being mingled with the other, in a due quantity, gives it the excellent temper of toughness, which is the cause that this *Iron* is preferr'd before any other that comes from foreign parts.

After they have procur'd a sufficient quantity of *ore*, the first operation is the calcining of it ; this is performed in kilns, much  
after

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after the fashion of our ordinary lime-kilns; these kilns are filled up to the top with the *coal* and *ore*, layer upon layer; and fire being lighted at the bottom, they let it burn 'till the coal is wasted; and then renew the kilns with fresh *ore* and *coals*, after the same manner as before.

This is done without fusing, *i. e.* melting of the metal, and serves to consume the more drossy part of the *ore*, and to make it malleable, supplying the place of the beatings and washings, us'd in other metals.

From hence it is carried to the furnaces, which are built either of brick or stone, about 24 foot square on the outside, and near 30 foot in height within; but not above 8 or 10 foot over, at the widest part, which is at the middle; the top and bottom having a narrow compass much of an oval form.

Behind the furnace are fix'd 2 huge pair of bellows, the noses of which meet at a little hole near the bottom; these are compress'd together by certain buttons, plac'd on the axis of a very large wheel, which is turn'd by water, in the manner of an overshot mill.

As soon as these buttons are slid off, the bellows are rous'd again by the counterpoise of weights, whereby they are made to play alternately; the one giving its blast, the time the other is rising.

At first these furnaces are filled with *ore* and *cindar*, intermix'd with the fuel, which is charcoal, laid hollow at the bottom, that it may more easily take fire; but after it has once kindled, the materials run together in a hard cake or lump, which is born by the form of the furnace; and through this the metal as it melts, trickles down into the receivers, which are plac'd at the bottom, where there is a passage open, by which the men take away the scum and dross, and let out the metal, as they see occasion.

A large bed of sand lies before the mouth of the furnace, in which are made furrows of the shapes, into which they would have the *Iron* cast.

As soon as the receivers are full, they let in the metal, which is made so very fluid, that it not only runs to a considerable distance, but stands afterwards boiling for a good while.

When the furnaces are once at work, they are kept constantly employ'd for many months together, never suffering the fire to slacken night or day; but still supplying the wasting of the fuel and other materials, with fresh, poured in at top: they use charcoal altogether in this work, for sea-coal will not do.

From these furnaces the workmen bring their sows and pigs of *Iron* to the forges, where they are wrought into bars.

To

# I R O

*To paint IRON* [in *miniature*] colour it with *indigo*, a little black and white, and finish it with *indigo* alone, heightening with *white*.

*To gild IRON or steel.* Take *tartar* 2 ounces, *vermilion* 6 ounces, *bole-armeniack* and *aqua-vitæ*, of each 4 ounces, grind them together with *linseed-oil*, and put to them the quantity of 2 hazle-nuts of *lapis calaminaris*, and grind therewith in the end a few drops of *varnish*; take it off the stone, strain it through a linnen cloth, (for it must be as thick as honey) then strike it over *Iron* or *steel*, and let it dry; so lay on your silver or gold, and burnish it.

*To gild IRON with water.* Take spring-water 3 pound, as many ounces of *roch-alum*, *Roman vitriol* and *orpiment* of each 1 ounce, *verdigrease* 24 grains, *sal gemma* 3 ounces, boil all together, and when it begins to boil, put in *tartar* and *bay-salt*, of each half an ounce; continue the boiling a good while, then take it from the fire, and strike the *Iron* over with it, dry it against the fire, and burnish it.

*To lay gold on IRON or other metals.* Take of *liquid varnish* 2 pound, *linseed-oil* and *turpentine*, of each 2 ounces, mix them well together, and strike them over *Iron* or any other metal, and afterward lay on leaf-gold or silver, and when it is dry polish it.

*A water for gilding Iron, steel, knives, swords, and armour.* Reduce fire-stone to powder, put it into a strong red wine vinegar, for 24 hours, boil it in a glaz'd pot, adding more vinegar as it evaporates or boils away, dip *Iron*, *steel*, &c. into this water, and it will come out black; then polish it, and you will have a gold colour underneath.

*Another way.* Take *salt-petre*, *roch-alum* burnt, of each an ounce, *sal-armoniack* 2 ounces, powder them fine, and boil them with strong vinegar in a copper-vessel, with this wet the *Iron*, and lay on leaf-gold.

*Another way.* Grind *roch-alum* with the urine of a boy, 'till it is well dissolv'd, heat the *Iron* red-hot, in a fire of wood-coals, and anoint the *Iron* with the liquor, and it will look like gold.

*Another way of gilding Iron.* Take of water a pound and a half, of *alum* one ounce, *sal gemma* an ounce and a half, of *Roman vitriol*, and *orpiment*, of each half an ounce, of *flos æris* 12 grains; boil all with *tartar* and salt, as in the first prescription.

*To make Iron of the colour of gold.* Take *linseed-oil* 6 ounces, *tartar* 4 ounces, *yolks of eggs* boil'd hard and beaten 4 ounces, *aloes* 1 ounce, *saffron* 10 grains, *turmerick* 4 grains; boil all together in an earthen vessel, and anoint the *Iron* with the oil, and it will look like gold.

# I R O

If there be not *linseed-oil* enough, you may put in more ;  
*A golden liquor to colour Iron, wood, glass, or bones.*

Take a new-laid egg, make a hole at one end, and take out the white, and fill it up with 2 parts of *quicksilver*, and one part of *sal-armeniack* finely powdered, mix all together with a wire or little stick ; then stop the hole with melted wax, over which put an half egg-shell, digest them in horse-dung for a month, and it will be a fine golden coloured liquor.

*To soften Iron.* Put *alum*, *sal-armeniack* and *tartar*, of each a like quantity, into good *vinegar*, set them on the fire ; heat the *Iron*, and quench it in this liquor, or quench it 4 or 5 times in oil, in which melted lead hath been put 6 or 7 times.

*To gild IRON and STEEL.* You must first give to the *Iron* and *steel* the colour of brass by the following method.

Polish the *Iron* or *Steel*, and then rub it with *aqua-fortis*, in which filings of brass have been dissolv'd: the same is to be done as to *silver*.

2. An *amalgama* of gold and *mercury*, with which *silver-gilders* gild *silver*, *brass*, and *copper*, will not gild *Iron* and *steel*; but by the following method it may be done.

First coat the *Iron* or *Steel* with *copper*, by dissolving very good *vitriol of copper* in warm water, 'till the liquor be satiated with the *vitriol*; then immerse the *Iron* or *Steel* several times in the dissolution (but having first secured it bright) and suffering it to dry each time of itself; for by this immersion being often enough repeated, enough of the copperous particles will precipitate upon the *Iron* to fill the superficial pores of the *Iron*.

3. By this safe and easy way, having overlaid the *Iron* with *copper*, you may gild it as *copper*, either by the aforesaid *amalgama*, or by the method of whitening *copper* or *brass* artificially, (*which see in the articles of COPPER and BRASS.*)

*To make IRON of a gold colour.* Take *alum* of *melancy* in powder, and mix it with sea-water; then heat the *Iron* red-hot, and quench it with the water.

*To make IRON of a silver colour.* Mix powder of *sal-armeniack* with unslack'd lime in cold water, heat the *Iron* red-hot, and quench it in it, and it will be as white as silver.

*To harden IRON or STEEL.* Quench it 6 or 7 times in hogs-blood, mixt with goose-grease at each time, drying it at the fire, before you dip it in again, and it will become very hard, and not brittle.

*To solder IRON.* Put the joints of *Iron* together as close as you can, lay them in a glowing fire, and take of *Venice glass* in powder, and the *Iron* being red-hot, cast the powder upon it, and it will solder itself.

# I R O

*To tinge IRON with a gold colour.* Lay plates of Iron and brimstone in a crucible, layer upon layer, cover it, and lute it well and calcine it in a furnace; then take out the plates, and they will be brittle; put them into a pot with a large mouth, and put in sharp distilled vinegar, digesting over a gentle heat till they wax red; then decant the vinegar, and add new, doing this till all the iron be dissolved; then evaporate the moisture in a glass *retort* or *vesica*, and cast the remaining powder on silver or other white metal, and it will look like gold.

*To whiten IRON.* First purge the *Iron*, by heating it red-hot, and quenching it in water made of *lye* and *vinegar*, boiled with salt and alum, doing this so often till it becomes whitish.

Pound the fragments of iron in a mortar, till the salt is quite changed, and that there is no blackness left in its liquor, and till the iron is cleansed from its dross.

Then amalgamate lead and quicksilver together, and reduce them into a powder: then lay the prepared plates of iron and this powder layer upon layer in a crucible; cover it, and lute it all over very strongly, that the least fume may not issue forth, and set it into the fire for a day; at length increase the fire, so as it may melt the Iron (which will be done very quickly) and repeat this operation till it is white enough.

It is whitened also by melting with lead the *marcasite* or *fire-stone* and *arsenick*.

If you mix with it a little *silver* (with which it readily unites) it gives a wonderful whiteness, scarcely ever to be changed any more by any art whatsoever.

*To render IRON of a brass colour.* Take *flowers of brass*, *vitriol*, and *sal armoniac* in fine powder, of each a like quantity; boil it half an hour in strong vinegar; take it off, and put in either *iron* or *silver*, covering the vessel till it is cold, and the metal will be like to brass, and fit to be gilded; or rub polished iron with *aqua fortis*, in which filings of brass have been dissolved.

*To tinge IRON of a brass colour.* Melt the iron in a crucible casting *sulphur vivum* upon it; then cast it into small rods, and beat it into pieces; (for it will be very brittle:) then dissolve it in *aqua fortis*, and evaporate the *menstruum*, reducing the powder by a strong fire into a body again, and it will be good *brass*.

*To soften IRON.* Take *alum*, *sal armoniac* and *tartar* of each like quantities; put them into good vinegar and set them on the fire; heat the Iron and quench it therein; or quench it 4 or 5 times in oil, in which melted lead has been put 6 or 7 times.



## J U D

*To keep IRON from rusting,* Rub the Iron over with *vinegar* mixed with *Ceruse*, or with the marrow of a heart; if it be rusty, oil of *tartar per deliquium*, and it will presently take the rust away and cleanse it.

*To preserve IRON-WORK from rust, and other injuries of a corroding air, by an oily varnish.* Take good *Venetian*, or for want of that, the best and clearest turpentine, dissolve it in oil of turpentine, and add to it some linseed-oil, made clear by long standing in the hot sun (for some uses common drying linseed-oil may serve) mix them well together, and with this mixture varnish over any sort of bright iron-work whatsoever.

It is a certain preserver of all such iron-work from rust, let it be what it will, provided it be such as is not brought into common use; for much handling will wear it off, and heat will dissolve it: but for all such bright iron-work that is used about either carpenters or joiners work, that require not much handling; as also arms, &c. that hang up for state, rather than present use, it is an infallible preservative.

When you use this oily varnish, 'tis best to warm it, and then with a brush lay it on as thin as possible; this is best for arms: but for other iron-work, it may be laid on cold; in four or five days after it has been laid on, it will be thoroughly dry.

*Note,* That such arms as have been done over with it may when they come into use be cleansed from it again, by being warmed hot before a fire; for heat will dissolve it, but water will do it no hurt.

IRRESOLUTION is represented [in *Painting*, &c.] by an old woman sitting; a black cloth wrapp'd about her head, in each hand a crow seeming to croak.

Sitting, because knowing the difficulty of things, she does not deliberate which is best; in old age, because long experience makes men unresolved; the crow seeming to croak out CRAS, CRAS, intimates mens putting off from day to day, when they should dispatch affairs in the present time; the black cloth denotes obscurity in her intellect, making her to be in a quandary.

J. S. signifies *Justin Sadeler* ex. *John Saenreden* used the like mark, joining the J. to the S.

J. S. B. signified *John Sebald Beham*.

J. V. M. signified *Israel Van Mechelin* or *Mechelini*, or *Van Meck*, and of *Lomazzo* surnamed of *Mentz*. He lived before *Albert Durer*, and sometimes marked his plates with the name *Israel* only.

JUDGMENT is represented [in *Painting*, &c.] by a naked man attempting to sit upon a rainbow; holding a square, a rule, compasses, and a pendulum in his hand.

The



# J U N

The instruments denote discourse, and the choice ingenuity should make of methods to understand, and judge of any thing; for he judges not aright, who would measure every thing by one and the same manner. The rainbow indicates, that much experience teaches judgment, as the rainbow results from the appearance of divers colours, brought near one another by virtue of the sun-beams.

JUST JUDGMENT is represented [in *Painting*, &c.] by a man in a long grave robe, with a human heart for a jewel engraved with the image of truth; he stands with his head inclined, and his eyes fixed on open law-books at his feet, which denotes integrity in a judge, who never ought to take his eyes off the justice of the laws, and contemplation of naked truth.

JULY, is represented [in *Painting*, &c.] in a garment of a light yellow colour, eating Cherries, with his face and bosom sun-burnt; on his head a garland of centaury and thyme, on his shoulder a scythe, with a bottle at his girdle, and carrying a lion.

JUNE is represented in a mantle of dark grass-green, upon his head a coronet of bents, king-cobs and maiden-hair, holding in his left hand an *angle*, in his right *Cancer*; and upon his arm a basket of summer fruits.

JUNO, was represented [in *Painting*, &c.] by the ancients, by a woman of a middle age, holding a silver vessel in one hand, and a sharp spear in the other.

*Homer* represents her drawn in a chariot glittering with precious stones, the wheels of which were ebony, and the nails fine silver, mounted upon a seat of silver, and drawn with horses, which were fastened with chains of gold.

She is frequently painted with a sceptre in her hand, to shew that she hath the bestowing of governments, authorities, and kingdoms.

*Martianus* represents her (sitting in a chair under *Jupiter*) with a thin veil over her head, crowned with a coronet incased and adorned with many precious jewels; her inward vestment fine and glittering, over which hung down a mantle of a darkish colour, yet with a secret shining beauty; her shoes of an obscure and sable colour; in her right hand holding a thunder-bolt; and in her other a loud noisy cymbal.

*Pausanias* tells us, that in a temple in *Corinth* her statue (made of gold and ivory) was adorned with a glorious crown, on which was engraven the pictures of the *Graces*; she holding in one hand a pomegranate and in the other a sceptre, on the top of which was a cuckow; because *Jupiter* when he became first enamoured with *Juno*, transformed himself into that bird.

## I V O

The same author says, *That as to this story*, (and others of the like kind) *tho' he did not believe such things to be true, nor any others, that are so written of the Gods; yet that they are not altogether to be rejected, because they contained mysteries, and carried in themselves an inward meaning, which no doubt some might have explain'd, if the tyranny of fore-past times had not destroyed and obliterated the same.*

*Tertullian* writes, that in *Argos*, a city of *Greece*, the statue of *Juno* was covered all over with boughs of a vine, and under her feet lay the skin of a lion, which intimated the hatred and disdain she bore towards *Bacchus* and *Hercules*, to whom, as the poets say, she was step-mother.

Some have represented her like a woman of a middle age, holding in one hand a poppy-flower or head; and a yoke, or pair of fetters lying at her feet.

By the yoke is signified the band of matrimony, and by the poppy fruitfulness; and hence she is supposed to be the goddess of marriage.

She is also depicted with black hair and eyes, adorned with a sky-coloured mantle, wrought with gold and peacock's eyes, like the orient circles in the peacock's train.

IVORY, is the tooth or tusk of an elephant, which grows on each side of his trunk, in form of a horn.

Ivory is much esteemed for its colour, its polish and the fineness of its grain when wrought.

The Ivory of the island of *Ceylon*, and that of the isle of *Achem* have this Peculiarity, that they never become yellow, as that of the *Terra-firma* and *East-Indies* does.

*Diascorides* says, that by boiling *Ivory* for the space of 6 hours with the root of *mandragoras*, it will become so soft and tractable, that it may be managed as one pleases.

BLACK IVORY, is only Ivory burnt, and drawn into a leaf when it is become black. It is ground with water, and made up into little cakes, or troches, and is used by the painters.

*To soften IVORY and Bones.* Lay it for 12 hours in *aqua fortis*, then 3 days in the juice of beets, and it will become tender, and you may work it into what form you please.

To harden it again, lay it in strong vinegar.

*To soften and whiten IVORY.* Take white-wine vinegar thrice distilled, and decoct red-sage leaves in it, with a little quick lime; put in the ivory while the liquor is boiling-hot, and it will soon become soft, and much whiter than it was before: this also takes yellow stains from Ivory.

*To soften IVORY a curious way.* Boil a good handful of sage-leaves in thrice distilled vinegar, put in a little quick lime, and boil the Ivory in it, and it will grow soft and tough, and  
not

## J U P

not break without difficulty, when it is worked in the finest combs-teeth, or other fine works.

*To whiten IVORY that is turned yellow.* Beat a pound of quick-lime small, and cover the Ivory with it; then gently, and by degrees pour vinegar upon it, and suffer it to lie for the space of 24 hours, then take it out, and rub it with alum-powder, and it will restore its first whiteness: in the like manner you may order bones.

*To take spots out of IVORY, and whiten it.* Lay the Ivory in quick-lime, and pour first a sprinkling of vinegar, and then water; but not too much, that the heat may not be too great, to make it scale or grow brittle; and when it has lain 24 hours, take it out, wash it with white-wine, rub and polish it, and it will be extraordinary white.

*To dye IVORY white.* If Ivory be yellow, spotted or coloured, lay it in quick lime, and pour a little water over it, letting it lie for 24 hours, and it will be fair and white.

JUPITER is painted with long curled black hair, clad in a purple robe, trimm'd with gold, and sitting on a golden throne, with bright yellow clouds dispers'd about him.

*Orpheus* has describ'd *Jupiter* with golden locks, with two golden horns peeping out of his temples, with bright shining eyes, with a large and fair breast, and wings on his shoulders.

*By the golden locks is signified the firmament, and its glorious army of tranfluent stars; by his 2 horns the east and west; by his eyes the sun and moon; by his breast the spacious ambientness of the air; and by his wings the fury of the winds.*

*Pausanias* says, that in the temple of *Minerva* (among the *Argives*) the statue of *Jupiter* was made with 3 eyes, 2 of them in their right places, and the other in the middle of the forehead.

*By which is signified his 3 kingdoms; the one heaven, the other the earth, and the last the sea.*

*Plutarch* relates, that in *Crete* he was represented wholly in human shape and proportion, but without ears.

*By which was intimated that superiors and judges ought not to be carried away by prejudice or persuasion, but to stand firm, stedfast, and upright to all without partiality.*

On the contrary, the *Lacedemonians* represented him with 4 ears, by which they intimated that God hears and understands all things; and that princes and judges ought to hear all informations before they deliver definitive sentence or judgment.

*Porphyrius* and *Suidas* represented the image of *Jupiter*, sitting upon a firm and immoveable seat, his upper parts naked and unclothed, and his lower parts covered and invested; holding in his right hand a great eagle, join'd with the figure of *Victoria*, and in his left hand a sceptre.

## J U S

This image was erected in *Piræus*, a stately and magnificent gate of *Athens*.

By the seat is indicated the permanency of God's power; the naked parts denote, that the compassion of the divine power is always manifest to those of an understanding spirit: the lower parts being covered, shew, that while we wallow in the world, and are, as it were, rock'd to sleep with the illecebrous blandishments of it, that the divine knowledge is, as it were, hid and obscur'd from us: by the eagle and *Victoria* is intimated, that all things are in vassalage and subjection to the divine all-commanding power; and by the scepter, rule over all things.

*Martianus* represents him with a regal crown, adorn'd with the most precious and glittering stones, having over his shoulders a thin white veil (made by *Pallas's* own hands) in which were inserted divers small pieces of glass, representing the most resplendent stars; in his right hand he holds 2 balls; the one all gold, the other half gold, half silver: in the other hand an ivory harp with 9 strings, sitting on a foot cloth, wrought with strange works, and peacocks feathers; and near his side lies a trident all gold emboss'd mass.

With the *Eleans*, a people of *Greece*, the statue of *Jove* was compacted of gold and ivory, impaled with a coronet of olive leaves; holding in his right hand the image of *Victoria*; in his left a sceptre, on the top of which was the pourtraiture of an eagle upon a seat of gold, enchas'd with the forms of many unknown birds and fishes, upheld and supported by 4 images of *Victoria*.

In *Caria* (a place of the lesser *Asia*) the statue of *Jupiter* was made, holding in one of his hands a pole-ax.

*Plutarch* says, the reason of this was on account of *Hercules*, who overcoming *Hippolyta* the *Amazonian* queen, took it from her, and gave it to *Omphale* his wife, a *Lydian*.

The *Platonists* understand by *Jupiter* the soul of the world; and that divine being, through whose almighty power every thing receives its being and formation.

JUSTICE is represented [in *Painting*, &c.] by a fair young virgin, drawing after her, with her left hand, a black hard ill-favoured woman, haling her by main force, and striking her over the face in a severe manner.

The young virgin is *Justice*, the other *Injuria*, i. e. *wrong* or *injustice*; she is drawn young and a virgin, to shew that judges and administrators of law, ought to be incorrupt and free from bribes, partiality, or flattery; but just, constant, and sincere.

JUSTICE is also represented [in *Painting*, &c.] by a virgin clothed all in white, blinded; in her right hand she holds the

*Roman*

## K A L

*Roman Fasces*, with an ax in it, in her left hand a flame, and an ostrich by her side.

The white shews that she should be spotless, void of passion, without respect to persons, as being hood-winked declares; the *Fasces* denote whipping for small offences, and the ax cutting off the head for heinous ones; the ostrich signifies that things should be ruminated upon, how hard soever they be, for that digests hard iron.

DIVINE JUSTICE is represented [in *Painting*, &c.] by a handsome woman, with a golden crown on her head, with rays above, her hair loose about her, a naked sword in her right hand, in the left the balance, the globe of the world at her feet.

The crown and globe shew their power over the world, the balance shews justice, the sword the punishment of malefactors.

### K.

**ISK** HANS KALDUNG us'd this mark; as also did *Luke van Cranogio*.

KALI, a Plant, also call'd GLASS-WORT; it grows in the sands on the sea-shore, where it is sown by the neighbouring Inhabitants, in order to burn it green.

Of the ashes of *Kali* is made soap, glass, alkali, salt, &c. this plant grows in great abundance in *Egypt* and *Syria*; the name of *Kali* was given it by the *Arabs*.

It is likewise found pretty plentifully in *Languedoc*, their manner of preparing it is as follows;

When the plant is grown to its pitch, they cut it down, and let it dry; afterwards they burn and calcine it in certain pits, like kilns, dug in the ground for that purpose, which are close covered up with earth, so that no air may come at the fire.

The matter by this means is not only reduced to ashes, but made into a very hard stone, like rock-salt, which they are forc'd to break with hammers to get it out; and this matter is call'd by the *French* *Salicor*, or *Soude en Pierre*.

There are such quantities of it made here, that it is exported into several other countries; but principally into *Italy*, where it is by the *Venetians* manufactured into those beautiful glasses, which are afterwards sent into several parts of *Europe*.

But yet the *salicor* made in *Languedoc*, is inferior to that brought from *Alicant*.

The best is in little dry, sonorous stones, of a bluish grey colour, and full of little eyes and holes.

The goodness of this herb is according to the places of growth it is taken from; that which grows on the coasts and banks of *Syria*, *Ægypt*, the *Levant*, &c. is the best; that which grows

## K E R

on the coasts of *Spain*, *Italy*, and *Venice*, is the next best ; that which grows on the coast of *France* is worse than the former ; but that which grows about the mouth of the river *Thames*, and other maritime places of *England*, is of little or no worth at all.

Of this *Kali* there are several sorts which are good for nothing ; but fly away in smoke, one of which is the *Kali spinosum*, which is not at all fit for this purpose.

KEEPING [in *Painting*] a term us'd to signify the subordination of all the other parts of a picture to the one principal figure, from whence the examination of the parts must be begun, and to which it must be return'd in the determination of the whole picture.

WILLIAM DE KEISAR was a very neat landskip-painter, after the manner of *Elzheimer* ; he was perfectly of the *Dutch* Goût, minding little particulars more than the whole together. He wrought sometimes with Mr. *Loten* the landskip-painter ; he imitated various manners, and drew some sorts of cattle and birds very well ; he also painted tombs and various sorts of stone-work in imitation of *Vergosoen*. He was not unskilful in painting architecture and flowers ; he died in *London* about 42 years ago.

KERMES is a kind of husk or excrescence, as it is generally thought, about the bigness of a Juniper-berry, round, smooth, and shining, of a beautiful red, and full of a mucilaginous juice of the same colour.

The name is purely *Arabick*, for in that country these berries grow on a small tree or shrub ; and from that their native soil were transplanted into *Spain*, *Provence*, and *Languedoc*, where they now are plentiful.

It is found sticking to the leaves and bark of a kind of *ilex* or holm-oak, in *Spain*, *Languedoc*, and other hot countries.

It has a vinous smell, a bitter but agreeable taste ; and its liquor contains an infinite number of little round or oval eggs.

The origin of the *Kermes* is suppos'd to be owing to a little worm, which pricking the holm-oak, to draw its nourishment from it, raises a little tumour or vessel, which fills with juice, and as it ripens becomes red.

When the *Kermes* is dried, there comes out of it an infinite number of little insects and flies, so small, that they are scarce discernible ; insomuch that the whole inward substance seems converted into them.

For this reason it is sometimes call'd *vermilion*, (unless perhaps it be so call'd from its beautiful vermilion colour.)

To prevent that inconvenience, they usually steep the *Kermes* in vinegar before they dry it.

The manner of preparing it for dying is as follows :

The



## K E R

The grain being taken when ripe, it is spread on linnen: and at first, when it abounds most in moisture, it is turned 2 or 3 times a day, to prevent its heating, till such time as there appears a red powder among it; then it is separated by being passed through a searce, and afterwards the grain is spread abroad on linnen, till the same redness of powder is perceived, and then the sifting is repeated again; and thus they proceed while they discover a red powder on the surface of the grain, which is still passed through the searce till it will yield no more.

In the beginning, when the small red grains are seen to move, as they will do, they are sprinkled over with strong vinegar and rubbed between the hands.

Were not this precaution taken, out of every grain would be formed a little fly, which would skip and fly about for a day or two, and at last, changing its colour, would fall down dead.

The grain being quite emptied of its pulp or red powder, is washed in wine, and then exposed to the sun; after this, 'tis put up in small bags, putting along with it the proportion of red dust that the grain had afforded.

According to M. *Marsilli's* experiments made at *Montpellier*, the grain of *Kermes* has the effect of galls, when mixed with vitriol, and makes a good ink.

Mix'd with oil of *tartar* or lime-water, its colour turns from a *vermilion* to a *crimson* colour.

In a decoction of turnsol-flowers it retains its proper colour.

*To extract scarlet colour from Berries of KERMES, for making a fine LAKE.*

Several ways may be given for extracting the tincture of these grains for making *Lake*; but I shall only mention two; the first is indifferent tedious; but is very excellent, and produces a tincture whereby is made a most admirable fine *lake*.

The way of making the *Lake* in *France* is very modern, and it is but of late they have had the secret in *Paris*, which was brought from *Venice*.

Take a gallon of fair-water, and 4 pound of wheaten bran, 2 drams of oriental *Piraster*, and as much *Fenugreek*; set all in a kettle over a fire, till the water is milk-warm; keep your hand in it until you can bear the heat no longer; then take it off, and cover it with a cloth that the heat may continue the longer; let it stand for 24 hours, then run off the *lixivium*, and keep it for the following purpose.

Put 3 quarts of fair water to half the *lixivium* into a clean earthen vessel; set it on the fire, and make it boil, which when it begins to do, put in an ounce of the grain pounded to an

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impalpable powder, in a brass mortar, and searced; then having pounded a little crude *tartar*, to take off the remaining part of the grains on the bottom and sides of your mortar, and so put it in with the grains; when the water begins to boil again, take it off in an instant, and set it by to cool.

This done, and the water cold, take the shearings of scarlet woollen-drapery, and let them stain therein for about half an hour: afterwards squeeze it into another earthen pot by expression; and after you have thus drawn off all the tincture, put the shearings into the last pot; stirring them about very well with a small stick, that they may stain the sooner. Boil all for about half an hour over a gentle fire, or else the tincture will become black; then take out the shearings, and put them well ting'd into a vessel of cold water: about half an hour after pour off the water gently, and so put fresh on again; then press and spread them to dry in a clean place, where no dust can come at them.

When you have done this, make the following *lixivium*.

Lay *Vine-ashes* stalks in a hempen cloth doubled, or ashes of willow, or some other lighter wood; pour on them by degrees cold water, letting it strain through into a vessel set underneath; pour it again on the Ashes, and when it is all run through, set it by to settle for 24 hours, that the ashes which is carried off, may fall to the bottom. When you have done this, pour the *lixivium* by degrees into another vessel, having warm'd it.

When it begins to be cold, set it over a gentle fire, and let it boil, and it will become red; take a little of the shearings, press them well, and if it remain without colour, take off the kettle immediately; for the *lixivium* has extracted it entirely.

Then spread a linnen cloth over a free-stone bowl, set the shearings therein, and pour on the *lixivium* by little and little, to strain and yield the tincture, then squeeze the cloth and shearings therein, to press out all the colour that remained in them; throw away the cloth; wash the shearings, clean and keep them for the like use another time.

Then put 12 ounces of *rock-alum* well powdered into a glass body full of cold water, letting it be quite dissolved; when this has been perfectly done, spread a linnen cloth over 2 staves, and set a large free-stone vessel underneath; put all the alum-water into the bottle of tincture, and strain it afterwards through this cloth: the *lixivium* will go thro' it clear, and leave the colour behind; but if it should not be coloured; 'tis only straining it through again, and you'll have done.

Now to get the tincture, you must mix all that remains in the cloth, and gather it together, spreading it afterwards over new-made tiles (which have not been allowed time to moisten)  
on



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on the pieces of linnen, and then mold them into troches to dry suddenly, without mouldying, which would spoil them.

Therefore great care must be taken that the tiles be not at all moist; and if they are, to change them, that it may dry the sooner, and thus you will have a Lake of an admirable colour for painting: you must lessen or improve the colour as you find occasion by a greater or lesser quantity of *rock-alum*.

*A readier way to extract the tincture of KERMES Berries.*

Tho' the *Menstruum* given above, made with shearings of scarlet cloth, be a very good one for this purpose, yet the following is a more easy one, and as effectual:

Take strong-water of the first run or distilling, and put it into a long-necked glass body; dissolve in it a pound of *rock-alum*, adding an ounce of *Kermes Berries* finely powdered and searced; let it digest well, shaking the matrafs from time to time, and the strong-waters will draw to them all the tincture of the *Kermes*, and be very finely coloured; then let all settle for 4 days, and afterwards pour it gently into a glazed earthen vessel.

Dissolve 4 ounces of *rock-alum* in running-water, and pour this into the strong-waters, or tincture of *Kermes* to cause a separation: filter it through a linnen-cloth, and the strong-waters will fall through white, leaving the tincture behind. If they be any thing coloured, strain them again and again, till they be clear: take up the *lake* or colour with a wooden spoon, and make it into troches; drying them as directed for the former. Thus you may have a quantity of this colour, or *lake*, as fine and as good as the former.

**X** LUKE KILIAN put this mark on a nativity copied from *Parmegiano*.

*To dye SILK a KING'S colour.* Put a sufficient quantity of water into a clean kettle or copper, and to every pound of silk take 12 ounces of *madder*, and the same quantity of galls; boil the silk with them for an hour, then take them out, let them be a little browned, and then dried.

ANNE KILLIGREW, was a young gentlewoman, daughter of Dr. Killigrew, master of the *Savoy*, one of the prebendaries of *Westminster*. She painted several histories, also portraits, for her diversion, exceedingly well, as likewise some pieces of still life. Mr. Becket did her picture in *mezzo-tinto* after her own painting. She was also a poetess, and wrote a book of poems which were printed: She lived unmarried, and died young, about the year 1688.

JOHN ZACHARY KNEILER was born at *Lubeck*, and brother to Sir Godfrey Kneller. He travelled to *Italy*, and when he came to *England* painted several portraits in small, very neat; he

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he did also several pieces in still life. At last he took to water-colours, and copied divers of his brother's portraits in miniature with good success. He died in *Covent-Garden* about 1704, and lies buried in that church.

Sir GODFREY KNELLER, born in the year 1646, lived at *London*, excelled in portraits, died in the year 1723, aged 77 years.

### L.

**L**ACCA, is a kind of gum, or rather wax, hard, red, brittle, clear and transparent, brought from *Malabar*, *Bengal*, and *Pegu*, and used in dying scarlet, &c.

Authors are not agreed as to the production of this curious wax.

*F. Tachard*, who was upon the spot, says, that a kind of little ants, fixing themselves to the branches of several trees, leave behind them a reddish moisture, which lying exposed to the sun and wind, hardens in 5 or 6 days time.

Some again are of opinion, that this is not the production of the ants, but a juice which they draw out of the tree, by making little incisions in it; and indeed the trees where the *Lacca* is found do yield a gum; but then 'tis of a nature very different from the *Lacca*.

The ants are as it were a kind of bees, and the *Lacca* is their *honey*: they work at it 8 months in the year, and the rest of the time they lie by, because of the rains.

The Method of preparing the *Lacca* is as follows: the first thing they do, is to separate it from the branches, to which it adheres; pound it in a mortar, and throw it into boiling water, and when the water is well dyed, they pour on fresh, till such time that it will tinge no more.

Then this water is set in the sun to evaporate, and afterwards the liquid tincture is strained through a cloth.

This gum being examined by *M. Geoffroy*, appeared to be a kind of Comb, such as bees and some other insects are accustomed to make. Upon breaking it into pieces, it appeared divided into a great number of little cells of an uniform figure, and which plainly shew that it never ouz'd from trees: these cells are not mere excrements, as some take them to be, but are destined for something to be deposited in them, and accordingly are found to contain little bodies, which those Persons who observed it first took for the wings, or other parts of insects which produced the *Lacca*.

These little bodies are of a beautiful red; and when broke make a powder as fine as cochineal.

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It is most probable that these cells are designed for the lodging of the young brood in, as those of bees; and that these little carcasses are the embryo's of the insects, or perhaps their skins. This before mentioned is the natural *Lacca*.

There are several sorts of *Lacca*, or *Lake*, or *Laque*; besides which there are several Lakes used by painters which go by these names, and are called artificial lakes; being coloured substances drawn from several flowers. See the article LAKE.

*To clean silver or gold LACE.* Lay the Lace smooth on a fine woollen carpet, and brush it free from dust; then burn *rock-alum*, and powder it very fine, and afterwards sift it through a lawn sieve, then rub it over the Lace with a fine brush, and in doing it will take off the tarnish, and restore it to its brightness, if it be not too much worn on the threads.

LACES, POINT, &c. [to paint in *miniature*] lay on first a mixture of *blue*, *black*, and white, as for linens; then heighten the pattern, flowers or flourishes with white only; then shade and finish with the first colour.

When they are upon flesh, or any thing else which you would have to be seen through them; finish what is under them, as if you intended to lay nothing on them, and lay on the Lace or point with pure *white*, and finish with the other mixture.

*To make the common LACKER varnish.* Take rectified spirits of wine 2 pound, *shell-lac* in powder half a pound, put them into a two-quart bottle, and let them stand till the *lac* is quite dissolved; then strain it, and add a little common *sanguis draconis* in fine powder, and a little *turmerick* in fine powder, both tied up in a rag; digest them for a day or two, shaking it often, and it is done.

Where take notice, *That you may heighten or diminish the colour by increasing or diminishing the quantity of the colouring Ingredients.*

*Another LACKER.* Take rectified spirits of wine 2 pound, *shell-lac* half a pound: let it be dissolved, and then strain it; then, instead of common *sanguis draconis*, take a very little drop of fine *sanguis draconis* in fine powder, and *English Saffron* dried, which tie up in a fine linnen rag, and put into the varnish, as before.

If you would have the colour deeper, or more like copper, add more *sanguis draconis*; but if lighter, the more *Saffron*.

*A LACKER varnish to be used without fire.* Take of the following varnish (in the next section) 2 pounds, *Venice turpentine* an ounce or 2 ounces; mix and dissolve it well with the varnish.

*With this you may lacker or varnish any thing in the open air, which, altho' it may look dull and cloudy just after varnishing,*  
yet

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*yet will that quickly vanish, and it will obtain in a short time a pleasing and goodly lustre.*

*To make the best sort of LACKER varnish now used by gilders.* Take fine *seed-lac varnish* (which see under the article VARNISH] 6 ounces, with which mix *arnotto* in fine powder a sufficient quantity; set it over the fire in a gally-pot, and let it dissolve, and keep it in a bottle close stopped.

2. Take fine *seed-lac varnish* 6 ounces, as much *gamboge* in powder as it will dissolve in a gentle sand-heat; keep this also in a glass close stopped for use.

3. Take *seed-lac varnish* one pound, and add to it 2 spoonfuls and a half, or 3 spoonfuls of the first reserved tincture, and 5 or 6 spoonfuls of the second reserved varnish tincture; and add to this 15 grains of saffron tied up in a rag: digest them for 24 hours, having first shaken them well.

4. Then make a trial of this varnish upon a bit of silver; if you find it too yellow, put in more of the *arnotto*, or first reserved varnish tincture: thus increasing or diminishing the preparation, till you have brought it to the exact golden colour, which is the ultimate or only thing aimed at.

*To LACKER oil-painting, sized works, or burnished silver.* Warm your picture-frame or piece of work before the fire; then having put out some lacker into a large gallipot, with a fine large and fast brush of hog's-hair, or camel's-hair, nimbly pass your work over, and be sure that you do not miss any part of it, nor yet wash the same part twice; but take special care to lay it thin, and even, and presently warm it by the fire while it looks bright; for by so doing you may lacker it again in a quarter of an hour, warming it before and after the operation.

Repeat this twice or thrice, and if you find the colour not deep enough, do it again the fourth time; but take care of making it too deep; for that is a fault cannot be mended.

*To make LACKERING look like burnish'd gold.* If you have before-hand burnished your silver very well, and your lacker is tinged of a true gold-colour, and you lay it on carefully with an even hand, not thicker in one place than another, matting it as you do burnished gold, it will be so exactly like gold-foil, or gilding, that it will be able to deceive the most curious eye, that shall not be before-hand acquainted with the fallacy.

*Here you are to observe,* That in lackering carved works, you must be quick, or strike and job your brush against the hollow parts of it, to cover them also, matting and varnishing them deeper, and more dull than other parts of the frame and pieces; and this deepening is done with the lacker-varnish, (or with *arnotto* it self) which being well mixed with the same, all the deep and hollow places and veins of the work are to be touched and deepened

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deepened with it; by which means the colour is accomplished, and the reflection of a perfect glory.

*To LACKER in oil such things as are exposed to the weather.*

1. The same method is to be observed here, as in the former, excepting in this, that your *priming* ought to be *whiter* than the last, which is effected by mixing a little *white-lead* which has been ground a long time, with the former gold size.


2. Also your silver size ought not to be so dry as that of gold, when the leaves are laid on.

*To gild carv'd-work in oil, which is not to be exposed to the open air.* Melt some size, and put in just so much *whiting* as will make it of a white colour; do the frame over once with this size.

2. Then add more *whiting* to the size, till it is of a proper thickness; and do it over 3 or 4 times, or more, with this, according as you find the work does require, letting it dry thoroughly between each time.

3. When this is thoroughly dry, rub and smooth the work all over with a piece of fish-skin or *Dutch-Rusbes*, and afterwards *water-plane* it, with a fine rag, dipp'd in water; rubbing it gently till it is very smooth, and then set it by to dry; and then *size* it with strong size.

4. Let it stand till it is dry, then lacker over the work twice by a gentle heat, and lay on your gold size, and perform every thing as before directed for laying on leaf-gold.

 **JEAN LADESPELDRIKT** *invenit*, is the mark on a dead *Christ*; and the same mark is found on other pieces.

**PETER VAN LAER**, called **BAMBOCCIO**, born in 1584, studied in *France*, and at *Rome*, lived at *Haerlem* and *Amsterdam*, excelled in *History*, *Landscapes* and *Grotto's*, died in the year 1644, aged 60 years.

**LAKE**, comes next after **CRIMSON**, and is good for shadeing and heightening *Carmine*. But you must take notice of this, that in laying of *carmine* upon a print, you must touch your lights only with a very thin tint of it, that can scarcely be discerned; and lay it on strong, just upon that part of the light which enters upon the shade; and afterwards lay some lake on the stronger part of the shade.

*Lake* is to be had ready prepared in shells for water-colours, and is sold in some *colour-shops*.

*To make a fine LAKE.* Take half a pound of good *Brazil*, boil it in three pints of lye, made of the ashes of vine-sprigs, till it be half evaporated, then let it settle, and strain it off.

Then boil it again with fresh *Brazil* a quarter of a pound, of *Cochineal* 2 pounds, and *terra merita* half an ounce; adding

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ing to it a pint of fair water; let it boil till it be half evaporated, as before; then set it by to settle, and strain it. But when you take it off the fire, put in half an ounce of burnt-*alum* reduced to an impalpable powder; let it dissolve, stirring it with a stick, and add to it a quarter of a dram of arsenick.

In order to give it a body, reduce 2 cuttle-fish bones to a fine powder, and put in the powder, and leave it to dry up at leisure, and then grind it with a good quantity of fair-water, in which leave it to steep; and afterwards strain it through a cloth, and make it up into small tablets or cakes, and set it to dry on a card or paste-board.

If you would have this *lake* redder, add to it *lemon*-juice, and if you would have it deeper, add to it *oil of tartar*.

*Another LAKE.* Boil shavings or shearings of scarlet in a lye of the ashes of burnt *tartar*, or oil of *tartar*; this lye having the quality of separating the *scarlet*; when it has boil'd enough, take it off, and add to it *cochineal*, *mastick* in powder, and a little *rock-alum*; then boil them again all together, and while it is hot, strain it 2 or 3 times through a jelly-bag; the first time squeezing the bag from top to bottom with 2 sticks, then take out what remains behind in the bag, and wash it well; then pass the liquor you express'd with the sticks through the bag again, and you will find a paste sticking to the sides of the bag, which you may either spread out upon a paste-board, or divide into small parcels upon paper, and set it by to dry.

*To make Columbine LAKE.* Steep half a pound of the finest *Brasil* wood of *Fernambouc*, rasp'd in 3 pints of the most subtilly distill'd *vinegar*, for at least a month; and if it be for 6 weeks, it will be the better. After which, boil all in *balneo marie*, 3 or 4 wabbles up, and leave it for a day or two; after which, put a quarter part of *alum*-powder into a very clean earthen pan, and strain the liquor upon it through a cloth, and so let it remain for a day; then heat the whole till it simmers, and leaving it again for 24 hours, reduce 2 cuttle fish-bones into powder, and having warm'd the liquor, pour it in upon them; then keep stirring the whole with a stick till it is cool, and leave it again for 24 hours before you strain it. Remember that it must be first strained upon the *alum*, before it is poured upon the cuttle-fish bone.

*The marc or dregs of COLUMBINE LAKE.* To make a fine purple colour, besides the *carmine* for oil and distemper, take the marc or dregs of the *columbine lake*, which subsides with the *cuttle-fish bone*, and dry it and grind it; and there will be no fine *Lake* so splendid: and if it be mixt with *Lake*, there will be an addition made to its body.

*Major-*



## L A N

*Major-General* LAMBERT was a great encourager of painting, and a good performer himself in flowers, as was, or is yet to be seen in the Duke of *Leeds's* house at *Wimbleton*. It is probable he might have learn'd this art, or at least have been furthered in it by *Baptist Gaspars*, whom he receiv'd into his service at his coming into *England* in the time of the Civil Wars. His eldest Son *John Lambert, Esq;* also painted faces for his diversion very well, many of whose pictures are still to be seen; this last gentleman died about 30 years ago, at his estate in *Yorkshire*.

PROSPER HENRICUS LANCRINCK was a *German*, born in the year 1628, is suppos'd to have learnt his art at *Antwerp*, was a *Landskip-painter*; copied after *Titian* and *Salvator Rosa*. He came into *England*; and Sir *Edward Sprag*, that noble sea-commander, became his patron; was employed by Sir *Peter Lely* in painting the grounds, landskips, flowers, ornaments, and sometimes the draperies of those pictures he intended to gain esteem by. He also practis'd drawing by the life, and succeeded well in small figures. He died at a middle age in the year 1692.

LANDSKIP	}	The view or prospect of a country, ex-
LANDSCAPE		tended as far as the eye will reach.
LANDSCHAPE		<i>Landskips</i> in painting are pieces representing some campaign or rural subject, as hills, valleys, rivers, country-houses, &c. where human figures are only introduc'd as accidents and circumstances.

This is esteem'd one of the lowest branches of painting.

LANDSKIP is what expresses in lines the perfect vision of the earth, and all things that are upon it; which are situate, or plac'd above the horizon, as towns, villages, castles, promontories, mountains, rocks, valleys, ruins, rivers, woods, forests, chafes, trees, houses, and all other buildings, both beautiful and ruinous.

2. In the first place always express a fair horizon, shewing the heavens cloudy or clear, more or less according to the occasion; and if you express the sun, let it be either as rising or setting, and as it were behind or over some hill or mountain.

The moon and stars are seldom or never depicted, unless it be in representations of twilights, because all things are suppos'd to be seen by day.

3. If you do express the sun, make his light to reflect upon all the trees, hills, mountains, rocks, or buildings, shading the contrary side; after which manner also shadow clouds, mists, and the like, making the shadows to fall all one way.

4. Take great care to augment or lessen every thing proportionably to their distance from the eye, making them either bigger or lesser.

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5. In expressing things at large distances, as 10, 20, or 30 miles off, where the object is hard to be discerned; as whether it be temple, castle, house, or the like; shew no particular signs thereof, or any eminent distinction, but rather, as weakly, faintly and confusedly, as the eye judges of it.

6. If *Landskips* be laid in colours, the farther you go, the more you must lighten it with a thin and airy blue, to make it seem, as if it were afar off, beginning at first with a dark green, so driving it by degrees into a blue, according to the distance.

7. Make your *Landskip* to shoot (as it were) one part lower than another, making the nearest place or hill highest; and those that are farther off to shoot away under that, that the *Landskip* may appear to be taken from the top of an hill.

8. Let every thing have its proper motion, as in *trees* when they are shaken with the wind, making the smaller boughs yielding, the stiffer less bending; in *clouds*, that they follow the winds, in rivers the general current, and flashing of the waters against the boat-sides.

9. In the *sea*, the waves and other proper agitations, the rolling of the billows, the tumbling of vessels up and down, the ships floating, some dipt, some half-drown'd, some standing almost an end, some hid almost with the waves, by means of the uncertainty of the surges, others endeavouring to live.

10. In the motion of waters falling from an high place, but especially when they fall upon rocks and stones, you must represent it leaping up into the air; and sprinkling all about: lastly, let *every thing* that moves, whether essentially or accidentally, have its proper representation.

11. Let the work imitate the season it is intended to represent; as if you intend it for a winter-piece, represent felling of woods, sliding upon the ice, fowling by night, hunting of bears or foxes in the snow, making the trees every where naked or laden with snow or a hoar frost; the earth bare, without greenness, flowers, or cattle; the air thick or heavy; the water frozen, with carts passing over it, and boys playing upon it, &c.

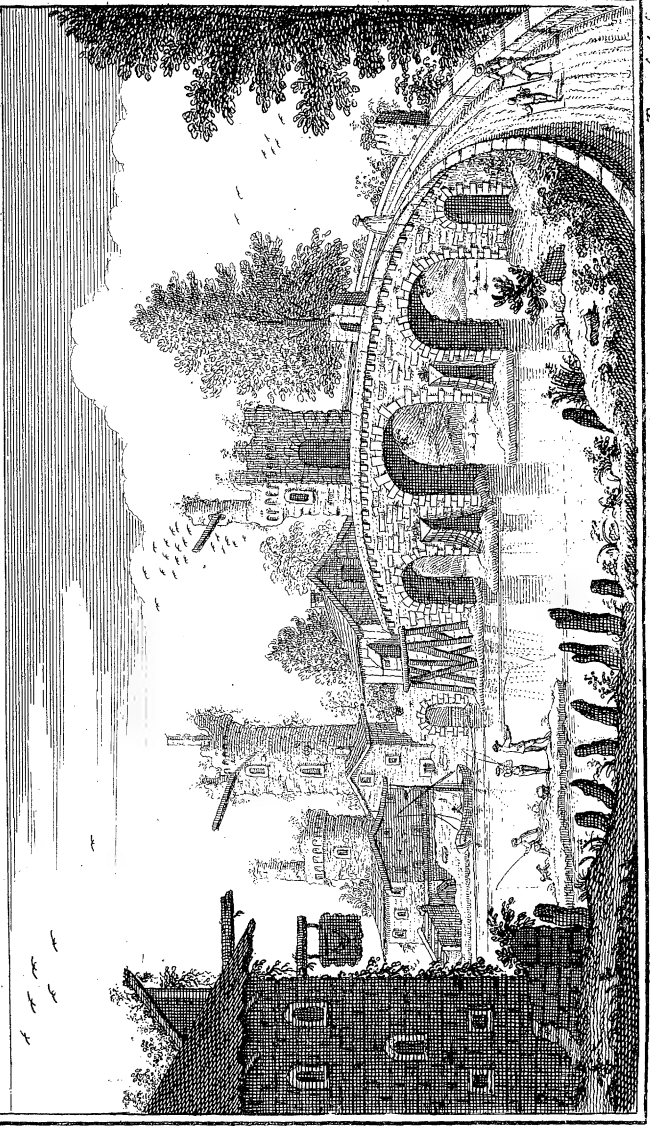
12. Lastly, let every site have its proper *parerga*, adjuncts or additional graces, as the farm-house, wind-mill, water-mill, woods, flocks of sheep, herds of cattle, pilgrims, ruins of temples, castles, and monuments, with a thousand such other things only proper to particular subjects.

LANDSKIP. If painting (says *Monf. de Piles*) be a sort of creation, 'tis more sensibly so in *Landskips* than in any other kind of pictures.

We see there nature rising out of her *Chaos*, the elements separated, the earth adorn'd with her various productions, and the heavens with their stars.

This







This sort of Painting contains all the other in little, and therefore the painter who exercises it ought to have an universal knowledge of the parts of this art; if not in so particular a manner as those that are used to history, yet at least speculatively and in general; and if he does not finish all the objects that compose his picture, or accompany his *Landskip*, he is obliged to specify lively the *gusto*, and the characters; and by how much the less his piece is unfinished, to give it the more vivacity.

However, says he, I do not pretend to exclude exactness of work from this talent; on the contrary, it will be the more admired, and the more valuable for it.

But let a *Landskip* be never so well finished, if its merit does not consist in the comparison of the objects one with another, and if their character be not thereby preserved, if the prospects are not well chosen, or not well set off with a good intelligence of the *claro obscuro*; if the strokes are not lively, and the scene animated by the figures, by animals or other objects, which are usually in motion; and if to a good gusto of colouring, and to extraordinary sensations, the genuineness and truth of nature are not joined, the picture will never be esteemed, nor be admitted into the cabinets of the true critics.

Of LIMNING LANDSKIP, *more particularly to make the tablet for Landskip*. Take a piece of vellum, and shave it thin upon a frame: fasten it with paste or glew, paste it upon a board; these sort of tablets are altogether used in *Italy* for *Landskip* and *History*.

2. If you take your *Landskip* from the life, take your station on a rising ground on the top of an hill, where you will have a large horizon, and mark your tablet into 3 divisions downwards from the top to the bottom.

3. Place your face directly opposite to the midst of the *finitor*, keeping your body fixed, and draw what is directly before your eyes, upon the middle division of the tablet; then turn your head (but not your body) to the right hand, and delineate what you view there, adding this to the former; also do the like by what is to be seen on your left-hand, and your *Landskip* will be completed.

4. Lay down every thing exact, not only in respect to distance, proportion and colour; but in form too: as, if there be *hills, dales, rocks, mountains, ruins, cataracts, aqueducts, cities, towns, castles, fortifications*, or whatsoever else may present itself to view, always making a fair sky to be seen afar off, and letting the light always descend from the left to the right.

5. When you first begin your work, begin with a large sky; and if there be any reflection or shining of the sun, be sure that you do not mix any red-lead in the purple of the sky or the clouds; but only with *lake* and *white*; work the yellow and whitish beams of the sun with masticote and white.

6. Then finish the blueish sky and clouds with a clean pencil; and *smalt* only at the first operation; dead all the work over with colours suitable to the air, green meadows, trees and ground; laying them somewhat smooth, but not over curiously, but slightly and hastily.

7. Make a fair, large sky, and work it down to the horizon faintly, but very fair; and drawing nearer to the earth; let the far distant mountains appear sweet and misty, almost undistinguishable, joining with the clouds, and as it were lost in the air.

8. The next ground-colour downwards must increase in magnitude of reason as nearer the eyes, somewhat blueish, or of a sea-green: but drawing towards the first ground, let them decline into a reddish or poppinjay-green.

9. The last ground-colour must be nearest to the colour of the earth, *viz.* a dark yellow, brown and green; with which, or some other colour near it, you must make your first trees.

10. Making them to increase proportionably in colour and magnitude, as they come near in distance, and that with good judgment; the leaves flowing, and falling in one with another; some apparent, and others lost in the shadow.

11. Let the Landskip lie low, and as it were, under the eye, (which is the most graceful and natural) with a large and full sky, not rising high, and lifting it self up into the top of the piece.

12. Take care to make your shadows to fall all one way, *viz.* to make light against darkness, and darkness against light; by that means extending the prospect, and making it seem as tho' it were a great way off, by losing its force and vigor, by its remoteness from the eye.

13. In touching the trees, boughs, and branches, put all the dark shadows first, raising the lighter leaves above the darker, by adding *masticote* to the *dark green*, which may be made with *bice*, *pink*, and *indigo*.

14. The uppermost of all, which are expressed last of all, by lightly touching the outmost edges of some of the former leaves, with a little *green*, *masticote*, and *white*; the darkest shadows may be set off with *sap-green* and *indigo*.

15. You must endeavour to express trees and their leaves, rivers and mountains far distant, with a certain real softness and delicateness.

16. To

## L A T

16. To represent cataracts, great water-falls, and rocks, there must first a full ground be laid near the colour, and then a stronger in dark places, and a slight heightening in the light.

17. Take notice of all disproportions, cracks, ruptures, and various representations of infinitely differing matters; the manner of which is abundantly expressed in almost every Land-skip.

*Cavalier* GIO LANFRANCO, born in the year 1581, scholar to the *Carraches*, and a zealous imitator of *Raphael Correggio*, lived at *Rome*, *Parma*, *Naples*, excelled in history, and died in the year 1647, aged 66 years.

*Mr.* LANIER was a painter well skilled in the *Italian* hands. He was employed by King *Charles I.* beyond-sea to purchase that collection made by him, to whom he was closet-keeper.

LAPIS LAZULI, a mineral stone of a blue colour. *Pliny* and *Dioscorides* reckon it a sand; *Agricola*, a mineral found in the veins of the earth; but in reality it is a mere stone, called by way of excellence *Lapis*, or *Lapis Lazuli*.

When this stone is perfect, it is studded with little specks, or stars of gold; and to be good, it should be able to resist the fire and smok, and to come out of them with new lustre.

It is found in mines of *gold*, *silver*, and *copper*, and also in pits of marble; which last is that now generally in use.

*Lapis Lazuli* is distinguished into 3 kinds: the first is called *old rock*, which is pure, smooth, a fine blue, with beautiful yellow streaks, like veins of gold, which yet are frequently no more than veins of *pyrites*.

The second, which is called the *new rock*, and is stuffed with common stones; its colour is weaker, and its price lower: These two kinds come to us from *Persia* and *Siam*.

The third kind is brought from the mountains of *Auvergne* in *France*. This kind is mixed with the common rock whence it is dug, is of a pale blue, and sprinkled with greenish spots, with veins of *pyrites*.

This, when sufficiently charged with spots of green, is sold for the *Armenian* stone.

LARK-SPUR, or HEEL, is of several colours, and striped; the most common are *purple*, *gridelin*, and *red*, which you may know how to do by the directions for other flowers of the same colour.

LATTEN, is a mixed or compounded metal made of plates of *copper*, put into crucibles, and covered with the powder of *Calamine*, or a kind of half-mineral sulphur strewed over it, and upon that the powder of beaten-glass; to which fire being put, and the greatest force of it kept in, alters the colour of

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the copper to a brassy quality, and adds in weight 8 pounds to the hundred.

**LAUGHTER** [in *Painting, &c.*] In this Passion all the parts of the face go one way; for the eye-brows being drawn down towards the middle of the forehead, causes the mouth, nose, and eyes to follow them in the same motion.

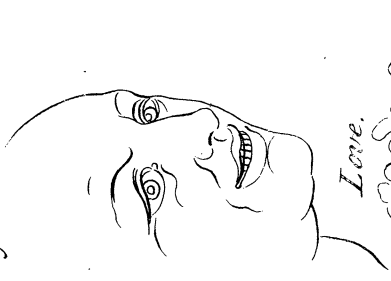
This passion of Laughter succeeds Joy, and the motions of it are expressed by the eye-brows raised about the middle, and drawn down next the nose; the eyes almost shut; the mouth appears open, and shews the teeth; the corners of the mouth being drawn back, and raised up, will make a wrinkle in the cheeks, which will appear puffed up, and almost hiding the eyes; the face will be red, the nostrils open, and the eyes may seem wet, or drop with tears, which being very different from those of sorrow, make no alteration in the face; but very much when excited by grief.

To **CAST LAUREL-Branches, FLOWERS, VINE-leaves, &c.** In order to do this, make a circle of earth like a box, to the bigness of the thing you intend to cast, and take for your imitation such *leaves, branches, flowers, &c.* as are of a good substance; for if they be too thin, they will not run without difficulty.

Then run a needle with a thread at the end of the stalk of the flower or leaf, and so through the middle of it, fastening the one end of the thread to the bottom of the circle, and the other to a stick that is to support it, over-against it in a perpendicular-line, that the flower or leaf touch not the sides of the circle: but before you fasten either, put a little piece of wax at the end of the stalk for a *git-hole*, which must touch the bottom where the thread was fastened.

Having done this, cast a composition of plaister of brick and plume with sal-armoniack water, and when it is well mixed, very fine and dry, bake it till the flower be wholly consumed which it encompasses, and has taken the impression off; and being almost cold, run into it tin, silver, or other metal. If *tin*, you may put a third part *lead*; or if *silver*, a little *copper*, and you will find the leaves or flowers very curiously taken in the metal; take them out by little and little, breaking off the mould; and after this manner you may cast all reptiles and creeping things.

**MARCELLUS LAURON, or LAROON**, was born at the *Hague* in 1653, and brought up under his father, who brought him very young into *England*. He was a general painter, and imitated other masters hands very well. He painted well both in great and little, and was an exact draughtsman, but was chiefly famous for drapery, wherein he excelled most of his  
contem-



*Mocking.*



*Love.*



*Love.*



*Rapture.*



*Rapture.*



*Extreme bodily pain.*







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contemporaries. He was likewise famous for pictures in little, commonly called conversation-pieces. He died and was buried at *Richmond* in *Surrey*, aged 52 years.

LAW is represented [in *Painting*, &c.] clothed in purple robes, feeded with golden stars; and a mantle of carnation, fring'd with gold, purple, and yellow buskins.

L. C. *Ciu. F.* with the first C in the perpendicular stroke of the L, is the mark of *Ludovico Cardi*, surnam'd *Civoli*, a *Flarentine* painter, in a plate of the supper of the Pharisee.

L. C. F. B. } signifies *Lewis Caracci* inventor. *Fran-*  
 LOD. C. I. Fr. Bri. } *cesco Briccio intaglio*, or ingravened.

L. C. } signifies *Luke van Cranogio*, or *Luke van Craen*, pain-  
 L. V. C. } ter in *Savoy*, anno 1509.

L. C. } signifies *Lewis Caracci* in his 3 plates, engrav'd with  
 L. O. C. } his own hands.

L. D. in a sacrifice, and *Alexander* the Great by Abbot *Primaticcio*.

LEAD is a coarse, heavy, impure metal, of all others the softest and most fusible, when it has been purified.

By making an analysis of it, it is found to contain a little *mercury*, some *sulphur*, and a great deal of bituminous earth.

*Lead* is found in various countries, but abounds particularly in *England*.

'Tis found too, in several kinds of soils, and stones, some of which besides contain gold, some silver, others tin, &c.

It is melted on a furnace, provided for the purpose, with a strong coal fire upon it; as it melts, it runs through a canal on one side of it, leaving the earth, stone, and scoria, with the ashes of the coals.

It is purified by skimming it before it is cold, and by throwing suet and other fat bodies into it.

*Lead* is found of a lighter or deeper colour, according as it is more or less purified, tho' some make a difference in the colour of the ore, always esteeming that best which is the whitest.

*Lead* is a metal of much use; it easily melts and mixes with *gold*, *silver*, and *copper*, and (as some say) communicates its humidity to them; but not being able to endure the violence of the fire, which they sustain, it retires or evaporates, and carries with it all that is heterogeneous in them; so that neither gold nor silver are refin'd without *Lead*. And the coarser kinds of precious stones, boiled in *Lead*, are thereby rendred the more brilliant.

When the *Lead*-ore is dug out of the mine, it is beaten small, and wash'd clean in a running stream, and sifted in iron rudders.

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The hearth or furnace, whereon it is melted, is made of clay or fire-stone; this is set into the ground, and the fire is built on it, and is lighted with charcoal, continued with oaken gads, blown with bellows by mens treading on them.

After the fire being kindled, and the fire-hearth is grown hot, the *Lead-ore* is thrown on the wood, which melts down into the furnace, and then with an iron ladle they take it out, and upon sand cast it into what form they please.

The miners sometimes find the vein run up into the roots of trees, and yet don't observe any difference between them and other trees.

When the mine lies near the surface of the ground, the grass is sometimes found yellow.

The ore runs sometimes in a vein, sometimes dispers'd in banks; it lies many times between rocks; some of it is harder, others softer; sometimes they have branch'd ore in the spar; about the ore is spar and chalk, and another substance, which the miners call *Crootes*.

It has been observ'd by Mr. *Glanvil*, that the smoke of the *Lead-works* in *Somersetshire* is a great annoyance, and affects both the workmen and the cattle that graze near them with a disease, that often proves mortal.

That the trees that grow near them have their tops burnt, and their leaves and outsides discoloured and scorch'd.

There are various preparations of *Lead*, serving for various uses; as

*Lead-dust* is a preparation us'd by potters, made by throwing charcoal-dust on melted *Lead*, and stirring them a long time together; to separate the coal again, they only wash it in water, and dry it afresh; the use of it is to give a varnish and gloss to their works.

*White Lead* us'd by painters is only thin plates of *Lead*, dissolv'd by the fumes of boiling vinegar.

*Masticotes* of several colours, and the *sandix* are also preparations of *Lead*.

*Red Lead* is a preparation of mineral *Lead* calcin'd, us'd by painters, potters, &c.

*Litharge* of gold or silver is only the *Lead* that has been us'd in purifying copper.

*Black-Lead* is a kind of mineral stone, of a black colour, but silvered and shining, found in *Lead* mines, and appears to be nothing else but *Lead*, not yet arrived at maturity, much us'd as crayons or pencils for *designing*.

This is melted like the common *Lead*.

*To purge LEAD.* Melt it in the fire, then quench it in the sharpest *vinegar*; melt it again, and quench it in the juice of *celandine*;

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*celandine*; melt it again, and quench it in *salt-water*; then in *vinegar* mix'd with *sal-armoniac*; and *lastly*, melt it, and put it into ashes, and it will be well cleansed.

*To tinge LEAD of a gold Colour.* Take of purg'd *Lead* one pound, *sal-armoniac* in powder 1 ounce, *salt-petre* half an ounce, *sal-ellebrot* 2 drachms, put all into a crucible, set it in a furnace for 2 days, then add to it sulphur of *sol*, and it will be thoroughly ting'd.

*To make LEAD of a golden colour.* Put an ounce of quick-silver into a crucible, set it over the fire 'till it is hot, then add to it of the best leaf-gold 1 ounce, and take it from the fire, and mingle it with purified *Lead* melted one pound; mingle all well together with an iron rod, to which put of the filtrated solution of vitriol in fair water 1 ounce, then let it cool, and it will be of a gold colour; dissolve the vitriol in its equal weight of water.

*The way of making Glass of Lead, commonly called Vitrum Saturni: to calcine Lead, and extract from it the colours of emerald, topaz, sea-green, or azure granate, sapphire, gold, and other colours.*

*Glass of Lead* known to few artists in this way, because they make no use of it by reason of its brittleness, is beyond doubt the fairest and noblest glass of any other.

In this glass you may imitate all the colours of oriental precious stones; and if this glass was as tough as crystal, it would far surpass it in beauty.

It is true, if you don't work it with great care, no pots or crucibles will hold it, for it will crack them and run out.

I will here give all the methods of preparing it; and that so distinctly, that the unexperienced may succeed in it.

The business principally consists in knowing well how to calcine the lead, and re-calcine it again, which is commonly known, notwithstanding it shall be shewn how to do it, for the sake of those that do not know it.

The better the lead is calcined, the less apt it is to turn into lead again, and break the pots in its operation.

We will also shew, that you must alway drop the glass into water when it is melted, for the least lead remaining in it, breaks out the bottom of the vessels, and so use your matter, which may be avoided, by carefully minding what we have, and which we shall note again in the following articles.

It is highly probable, that that subtilty, whereby the lead so easily in this case pierces the pots, when it is not wholly calcined, comes from a certain unctuous yellow matter like oil, that is seen to swim on the top sometimes in a violent fusion.

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For it has often been observed, that if that unctuous matter be not taken off, as soon as it appears on the top, it will pierce the pot, and so all run out among the coals.

*To calcine LEAD.* *Lead* is easy to be calcined, because it is so to melt; for this purpose you make use of a furnace or a kiln, you must put in a good quantity of *lead* at a time; for in 2 or 3 days may be calcined several hundred weight.

The fire ought to be hot enough to melt glass, and not hotter; for if it be hotter, it will not calcine the *lead*.

As soon as the *lead* is melted, and it yields on top a yellowish matter, begin to draw forward the calcined part with an iron, fit for the purpose, always spreading it in the internal extremity of the furnaces, or kiln's bottom.

This *lead* being well-calcined for the first time, ought to be put in again into the furnace moderately hot to reverberate; you must spread it with the iron, and stir it continually for several hours, and at this second calcination it will become yellow; then searce it through a fine sieve, and that which does not go through, must be put with other *lead* to calcine afresh; always taking care that the furnace have just a moderate heat, and be not too hot.

*The way to make glass of LEAD.* The beauty of this glass is, that it may be tinged of several colours, as black, white, green, and red, which are natural to it, the degrees of the fire only making it take those different colours.

This glass being well made, communicates its beauty to glass, and to tinctures of precious stones, wherein it is employed.

To make *vitrum saturni*, take 15 pound of calcined *lead*, and 12 pound of *crystal* or *rochetta* frit, according to what colour you would have; mix them well together, put them in a pot in the furnace, where 10 hours afterwards it will be in good fusion; then cast the whole into water, and take out speedily the remaining *lead* at bottom of the vessel, for fear it should break; then take it out of the water, and dry and put it into the same pot to melt again: Take care not to put in the grains of *lead* (if there be any) which were in the water, and which will be loosened from the matter.

After your matter has been again in fusion 6 hours, you may work it.

You may also make a glass of *lead*, by taking 3 parts of *lead*, and one of fine sand, and change them into glass in the furnace, as also of 3 parts of calcined *litharge*, and one part of calcined *flint*, melted and vitrified in the furnace together.

*The way how to work Glass of Lead.*

It is not enough to shew how to make glass of *lead*, if we don't shew how to work it too.

If

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If any one would make a vessel for use, of any figure, he must take a glass-worker's iron they use to take metal out of the pots with, and take what quantity of glass of *lead* with it he pleases, when it is in fusion: let it a little cool, then work it after the manner used by glass-workers.

You must clean well the marble you make use of, and while the glass is cooling, you must wet the marble with cold water, for otherwise the glass would scale it, and part of the marble would stick to it.

If the marble be hard, you have so much the less to fear, for it will not break so easily, nor stick to the glass.

*To make glass of Lead a fair emerald colour.*

The easiness of tinging glass of *lead* of any colours is the reason you may be sure of giving it an excellent emerald-green, especially because green is natural to it.

Take 20 pound of *crystal* frit, powdered and searced, and 16 pound of *calx of lead* also sifted; mix them well together, then put them little by little into a pot heated in the furnace, and 8 or 10 hours afterwards it will be melted, then cast the melted matter into water, and carefully take the remaining *lead* from it, then putting the matter after it is dried in the same pot again, 7 or 8 hours after it will be again melted.

Reiterate this process, casting the melted matter into water, and separating the *lead* that sticks to the pot, as before; then this glass will be cleansed and purified from all the foulness and untuosity the calx and powder would leave in it, and be very resplendent.

You must put it again in the pot, where it will melt and purify in little time.

When it is melted, put to it 6 ounces of scales of copper thrice calcined to powder, with 24 grains of *crocus martis*, made with vinegar also in powder, and mix them together.

This powder must be cast in at 6 times, always mixing well the glass, and taking at each time the interval of saying the creed. Let it rest one hour, and then stir it again, and see if the colour pleases you; if it be as you would have it, let it stand 8 hours, that the whole may well incorporate.

Then stir it well, and let it rest a little, that the *fæces* may precipitate to the bottom of the pot, tho' it may be wrought, and the colour can scarce be distinguished from a true emerald.

*Another way of making Glass of Lead of a fairer emerald than the former.*

For this colour which will be fairer than the precedent, you must change your ingredients, and instead of scales of copper thrice calcined, put the same dose of *caput mortuum*, of *vitriolum*

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*olum veneris* prepared, then proceed exactly as in the former article, and you will have a very exquisite green.

*To make a Glass of Lead the colour of Topaz.*

*Topaz* is a lighter colour than emerald, and casts rays the colour of gold; wherefore the colour cannot be well imitated except this way.

Take 15 pound of *crystal* frit in powder, and 10 pound of *calx of lead* also in powder, mix them well, and searce them very fine; then put them in a pot heated at the furnace, where leave it 8 hours, that it may be melted.

Then cast the matter into water, and take out of the pot all the *lead* (if there be any) that remains.

Put the matter again in the pot to be melted, and cast it by intervals into the water; and to that matter half its weight of glass tinged of a golden colour, incorporate well, and purify the whole together, and you'll have a glass of the colour of oriental *Topaz* fit to be wrought.

*To make a sky or sea-green in glass of Lead;*

As is shewn in several places elsewhere, to tinge glass of a sky-colour or sea-green, this would be needless to repeat here.

That we now shew, which is made in *glass of lead*, has no less beauty.

Take 16 pound of *crystal* frit, 10 pound of *calx of lead*, mix them together, and put them gently into a pot heated in the furnace, where they will be in good fusion in 12 hours time, then cast the matter into water, as has been shewn before, take the remaining *lead* out of the pot, and put your matter to melt again 8 hours, after cast it into water again, taking the remaining *lead* out of the pot, then it will be well purified.

Put it again in, to melt in the same pot, and when it is in good fusion, cast in at different times 4 ounces of small copper-leaves prepared (*see article Copper, &c.*) and a quarter of an ounce of *zaffer* prepared, (*see the article Zaffer, &c.*)

After having mixt these powders well together, and the matter at each casting of it in; 2 hours after stir the matter well in the pot with an iron rod, and make an assay to see if the colour be full enough, then let it stand 10 hours to purify, and to give the colour time to incorporate with the glass, then it may be wrought to the uses you design it, stirring it well, and letting it rest a little to settle before you work it.

*To make a sapphire colour in Glass of Lead.*

The beauty of sapphire is no less imitable in *glass of lead*, than the colours of other precious stones; and its clear blue transparent colour will have as much splendour.

To make it, mix together 15 pound of *crystal* frit in powder, and 12 pound of *calx of lead*, then searce it, pounding  
again

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again what does not pass through the sieve; add to that 2 grains of prepared *zaffer*, 24 grains of *manganesse* of *Piedmont* also well prepared, mix the whole well together, put it in a pot heated in a furnace, and let it stand to melt during the space of 12 hours; then cast the vitrified matter into water, and carefully take away the *lead* that remains in the pot; then put the matter again into the same pot, and let it stand to be re-purified 12 hours.

Then see if the colour pleases you, and you may work it; you'll have a colour like the true oriental sapphire.

*The way to make a golden colour in Glass of Lead.*

This colour is as fine in *glass of lead* as crystal, it takes that colour both from the *lead* and the ingredients mixt with it.

Take 16 ounces of good *crystal*, frit in powder, to which add the same weight of *calx of lead* also in powder, and well searced; then add 6 ounces of copper scales thrice calcined, and 48 grains of *crocus martis* made with *vinegar*, the whole mixed well together, put it into a pot heated in the furnace, 12 hours after cast the glass in water, and take the remaining *lead* out of the pot, and then put the matter again into the same pot to be well purified during 12 other hours.

After that stir it well, and see if the colour pleases you; if it chance to be greenish, add to it some *crocus martis*, and the greenness will vanish, then you'll have a golden colour very fine, which may be wrought.

These be all the colours that are given to *glass of lead* alone; we shall augment the number in a paste of *lead*, (*whereof you will find the preparation in the articles Paste in letter P*) because it is useful for imitating precious stones.

*How to PRINT the LEAF of any TREE or PLANT.*

Rub the veins on the back side of the *leaf* of any plant you desire, with a dog's tooth, or piece of ivory, to bruise them a little, then rub it over gently with a piece of woollen, dipt slightly in linseed oil; then lay the oil'd side of the *leaf* on a piece of white paper, and press it equally on every part, and a perfect impression of it will remain on the paper; which (if you please) you may afterwards colour of its natural colour.

*Another way of taking a natural impression of the LEAVES of PLANTS, so that it shall appear as black as if done in a printing-press.*

Take any *leaf*, let it be thoroughly dry, and with a printer's ball, such as they use for laying on the ink upon letters, it being equally covered with printer's ink; and strike it gently 4 or 5 times over the back of the *leaf*, 'till all the veins have been black'd with the ink; then lay your *leaf* on a trencher or small board with the backside upwards; then lay over the *leaf* a piece of white paper, wetted a little, so as to be but a small matter  
more



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more than moist, and upon this paper lay a smooth trencher, and press it hard down, but not so hard as to break the fine fibres of the *leaf*; and this will give you a fine impression.

But this would be done the more easily, if you had a wooden roller made like a *cylinder*, of about a foot in length, and an inch and half diameter, the middle part of which is covered to the length of 7 or 8 inches with woollen-cloth, roll'd hard and even 2 or 3 times about it.

The white paper that covers the *leaf* being roll'd 4 or 5 times backwards and forwards with this roller, will give you a very curious impression.

The necessaries requisite for this operation are a gallipot of printer's ink, a couple of small balls such as printers use, for laying the ink equally on the *leaf*, and the roller before-mentioned. But if you cannot conveniently procure printer's ink, (which is not easily to be had in the country) then you may use the following method.

*Another way.* Rub the back of the *leaf* with *linseed-oil burnt*, and then strew some powder of *black-lead*, or (if you have not that,) *charcoal* or *small-coal dust*, very finely ground and searced, or the powder of *burnt cork*, very equally, upon a smooth board, that will just cover it; then stroke it over smoothly with the blade of a knife, and clap it upon the board, the back of the *leaf* having been oil'd, and then lay your white paper on the black'd side of the *leaf*, and either press it, or roll it as before.

But if you have not the conveniency of any of these Ingredients, you may use *vermilion*, and mixing this to the consistence of printer's ink, cover your printing-balls with that, and dab them on the back of the *leaf*, and so take off your impression as before directed.

N. B. *The reason why the back of the leaf, is the side proper to take impression from, is, because the ribs or vessels rise on that side higher than the fleshy part of it; and therefore they being coloured with any of these inks, will give an impression; but in the front fore-side of the leaf, the fleshy parts rise, and these fine fibres are sunk below them.*

*Take notice that where vermilion is us'd, blue bice may be us'd either with butter or with oil as follows.*

*A fine red or blue printer's ink for making impressions of this sort.*

Take either *vermilion* or *blue bice*, and grind them with burnt *linseed oil*, and use it as you would do the other printing ink; the *blue* seems to be the most preferable of the two, because if you would colour the *leaf*, the *blue* would be a colour agreeable to the green sorts.

*A method of taking off the impression of the LEAVES of PLANTS in Plaister of Paris, so that they may be afterwards*  
cast

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*cast in any* METAL. Those persons who practise casting in metal have frequent occasion to use the Leaves of Plants for the embellishment of their works, which are generally made models done by the hand; which require much time, and, after all, are sometimes very deficient as to perfection: but the following is much easier.

Lay the leaf you would have the impression of between the leaves of a book, till it will lie flat; then fix the fore-side or front of the leaf to a smooth board with strong gum-Arabick water; after this has been done, raise a little wall of coarse paste about it, to the height of about half an inch; or you may surround your board with *paste-board*, or *card-paper*, so close, that it will contain a liquid for some time. Then oil the back of the leaf, and pour on water and *plaster of Paris*, which when dry will have taken an exact impression of every vein of the leaf, and from which you may easily make a mould to cast in, as you please.

*To preserve the* LEAVES of TULIPS. Make up some card-paper into the form of dripping-pans, and fix the *Tulip-leaves*, to the cards with strong gum-Arabick water; then pour on gently some of the ising-glass, prepared in spirits, warm, till the leaf is quite covered, and in the space of an hour or two the liquor will become hard, and all the colours will be preserved in beauty for several years, if the flower be preserved from the air, by a glass, &c

You may do the same by the leaves of *Auricula's*.

LEAGUE, is represented [in *Painting*, &c.] by two women with helmets embracing one another, holding spears in their hands, on which are a heron and a crow.

Their being armed and embracing, denote their conduct to help one another with their arms; the birds, enemies to the fox, at their feet, which they unanimously assault, as being enemies to them both.

LEARNING, is represented [in *Painting*, &c.] by a mature lady sitting with her arms open, as if she would embrace another, having a sceptre in one hand, on which is a sun, a book open in her lap, and from a serene sky falls abundance of dew.

Her age shews, that Learning is not acquired but by long study. The open book and extended arms, that Learning is very communicative; the sceptre and sun, the dominion it has over the darkness of ignorance; the dew, that Learning makes tender youth fruitful.

LEATHER, a matter too well known to need any description.

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*To colour WHITE LEATHER the best way.* Hang the skins in chalk or lime-water, till they are grown supple, that the hair or wool may be stripped off, stretch them on tenters, or by the means of lines, and smooth them over: then brush them over with alum-water, very warm, and colour them with the colour you would have them, and dry them in the sun, or in some warm house, and they will be useful on sundry occasions, without any farther trouble.

*To colour BLACK LEATHER the German way.* Take of the bark of elder 2 pounds, of the filings or rust of iron the same quantity; put them into 2 gallons of rain-water, and stop them up close in a cask or vessel, and let them stand for the space of 2 months: then put to the liquid part a pound of nut-galls, beaten to powder, and a quarter of a pound of *copperas*, heating them over the fire, and suffering them to stand 24 hours after, and then use the liquor with a brush till the skin has taken a fine black.

*To colour LEATHER a fair RED.* First rub the Leather well in alum-water, or alum it; boil stale urine, scum it, till half of it is wasted: then put in an ounce of the finest lake, the like quantity of *Brazil* in powder, one ounce of *alum*, and half an ounce of sal-armoniack; mix them well, and keep them stirring over a gentle fire about 2 hours, and so use the liquid part to colour or tinge the skin.

*To colour LEATHER of a curious French YELLOW.* Take one part of Chalk, and another of wood-ashes, and make of them a good lye; then strain out the fine liquor, and set it in a vessel over the fire, and put into it *turmerick* in powder, and a little saffron; and let it simmer till it becomes pretty thick; then set it a cooling, to be used as occasion requires.

*To make white LEATHER BLUE.* Take a quart of *elder-berries*, strain out the juice, and boil it with an ounce of powder of *alum*, and half an ounce of *indigo*, or *smalt-blue*, and brush over the leather with a fine brush dipped in it 3 times, suffering it to dry between whiles, and the business will be effected.

*To colour Spanish LEATHER, &c.* Take that which the *Dutch* call *Pomplemelch*, warm it, and rub the leather with it; then take of *Venice tot appelen*, and having pounded it small, put a quantity of water to it, and let it soften over a gentle fire; then press out the water, and rub or wash out the skin in it; repeating the same several times, and after that, take the finest shoe-makers *black*, and rub the skin over with it, having in the melting added a little *vitriol* or *copperas*, and letting it dry, take *goose* or *hog's* grease, and with a woollen cloth rub the skin over for a good while, where there is a good fire to  
supple

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supple it, and afterwards rub it over with your hands, till it disappear; or instead of grease, you may use *linseed* or *train-oil*, and so in case of any other colour, according to the colours you design.

### Dying LEATHER.

*To dye SKINS of a REDDISH colour.* First wash the skins in water, and wring them well out, and afterwards wet them with a solution of *tartar* and *bay-salt* in fair water, and wring them out again: then to the former dissolution add ashes of *crab-shells*, and rub the skins very well with this: after this, wash them in common water, and wring them out; then wash them with tincture of *madder* in the solution of *tartar* and *alum* and the *crab-shell* ashes; and if they prove not red enough after all, wash them with the tincture of *Brazil*.

*Another way.* First wash the skins, and then lay them in galls for 2 hours, wring them out, and dip them in a tincture made of *ligustrum*, *alum*, and *verdegrease* in water; and in the last place, dye them twice in *Brazil* boiled in lye.

*To dye Skins of a pure YELLOW.* Take of fine aloes two ounces, of linseed-oil 4 pounds; dissolve or melt them, then strain the liquor, and besmear the skins with it, and being dry, varnish them over.

*Another.* Infuse woad in vinegar, in which boil a little *alum*: or thus; having dyed them green, as directed, then dye them in a decoction of *privet berries*, *saffron* and *alum-water*.

*To dye Skins of an ORANGE.* Boil *fustick-berries* in *alum-water*: but for a deep orange, use *turmerick-root*.

*To dye them BLUE.* Boil *elder-berries*, or *dwarf-elder* in water, then smear or wash the skins with it; wring them out; then boil the berries as before in a dissolution of *alum-water*, and wet the skins in the same water once or twice, dry them, and they will be very *blue*.

*Another BLUE.* Take the best *indigo*, and steep it in urine a day; then boil it with *alum*, and it will be good. Or temper the *indigo* with red-wine, and wash the skins with it.

*To dye Skins of a pure sky-colour.* For each skin take *indigo* one ounce, put it into boiling water, let it stand one night, then warm it a little, and with a brush pencil besmear the skin twice over.

*To dye them PURPLE.* Dissolve *roch-alum* in warm water, wet the skins with it, dry them; then boil rasped *Brazil* well in water; let it stand to cool: do this 3 times, and afterwards rub the dye over the skins with your hand, and when they are dry, polish them.

*To dye Skins GREEN.* Take *sap-green* and *alum-water*, of each a sufficient quantity; mix and boil them a little: if you would have the colour darker, add a little *indigo*.

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*Another sad GREEN.* Take *filings* of iron and *sal Armoniack*, of each a like quantity, steep them in urine till they be soft; stretch out the skin, and besmear it with this; dry it in the shade, and the colour will penetrate, and be green on both sides.

**To GILD LEATHER.** Take glair of the whites of eggs, or gum-water, and with a brush rub over the Leather with either of them, and then lay on the gold or silver; let them be dry, and burnish them.

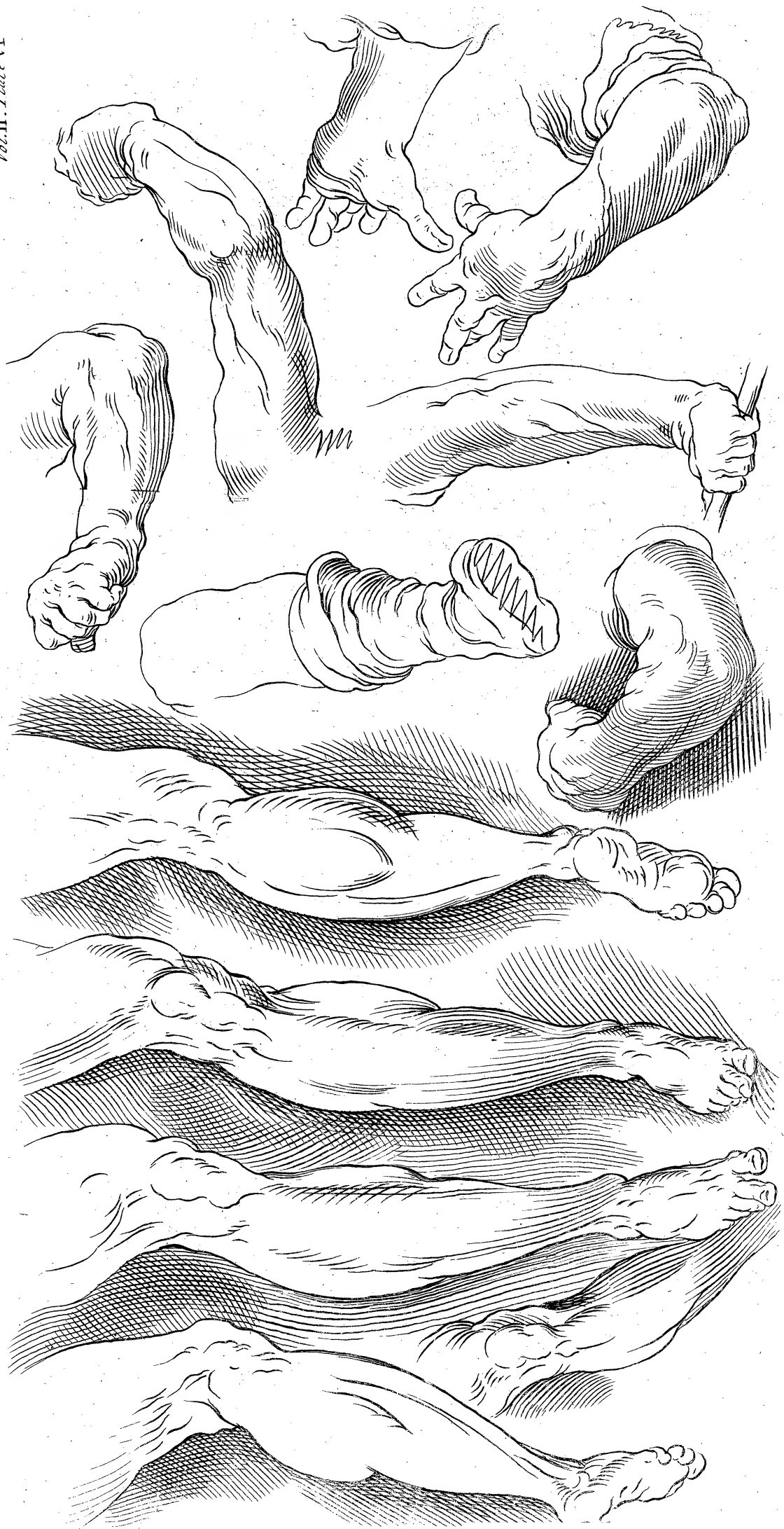
**To make LEATHER shine without GOLD.** Take whites of eggs, gum-water, and powder of *antimony*; mix them well together by beating, and having the skin well dried, lay the mixture on them, and do it often, till the leather be quite hid; when you have done this, let the mixture dry, and then burnish them over; and if you have not *antimony*, you may use *black-lead*.

**To dress or cover LEATHER with SILVER or GOLD.** Take that which is called *brown-red*, and grind or move it on a stone with a muller, adding water and chalk; and when the latter is dissolved, rub, or lightly dawb the skins over with it, till they look a little whitish; and then lay on the leaf-silver or gold, before they are quite dry; laying the leaves a little over each other, that there may not be the least part omitted; and when they have well closed with the leather, and are sufficiently dried on and hardened, rub them over with a polisher made of smooth ivory, or of the fore-tooth of a horse, and it will appear very lustrous and bright.

Sir PETER LELY, was born in *Westphalia* in *Germany* in the year 1617, Scholar of *De Grebber* of *Haerlem*, and came into *England* in the year 1641. He at first painted Landskip with small figures; but at length betook himself to face-painting, in which he exceeded all his contemporaries in *Europe*. He acquired a wonderful style in painting, both as to his draught and beautiful colouring; but more especially in the graceful airs of his heads, and the pleasing varieties of his postures; together with the genteel and loose management of his draperies, he excelled most of his predecessors.

And, notwithstanding the criticks say he preferred almost in all his faces a languishing air, long eye, and a drowsy sweetness, peculiar to himself, for which they reckon him a *Mannerist*, and that he retained a little of the greenish cast in his complexions; whatever of this kind may be objected against this great painter, his works are in great esteem both here and abroad, and equally valued and envied; for at that time no country exceeded his perfections.

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He was likewise a good history-painter: his crayon draughts are also admirable, and those are reckoned the most valuable of his pieces, which were all done entirely by his own hand.

The Earl of *Pembroke* recommended him to king *Charles II.* who made him his principal painter, and knighted him.

He died of an apoplexy in *London* in the year 1680, and 63d of his age. There is a marble monument, with his bust, raised for him in *Covent-garden Church*.

BALTHAZAR VAN LEMENS, a history-painter, born at *Antwerp*. His manner was very free, and often very graceful. His drawings and sketches are excellent. He died in *London* in the year 1704.

REMIGIUS VAN LEMPUT, *alias* REMEE, was a famous copier in the reign of king *Charles II.* of the neat masters, as *Stone* was of the great *Italians*. He was a native of *Antwerp*, and a great copier of *Vandyck*, by whom he was much encouraged.

His pieces sometimes, through the advantage of time upon them, pass for that great master's, now age has a little embrowned the tint, softened the colouring, and perhaps concealed some part of the stiffness whereof he stands accused by the criticks.

He had 150 *l.* for copying *Henry VII.* and *Henry VIII.* in one piece, after *Holbein*; being the famous picture that was on the wall at *Whitehall*, which was afterwards burnt.

He was very famous for the best collection of drawings and prints of any of his time. It was he that bought the celebrated piece of king *Charles I.* on horseback, by *Vandyck*, now at *Hampton-Court*, for a small matter, in the time of the troubles. which carrying over to *Antwerp*, he was there offered 1000 guineas for it, and stood for 1500; but thinking that not enough, he brought it over to *England* again; where, the times being turned, and he still insisting on the same sum, the picture was taken from him by a due course of law, after it had cost him a great deal of money to defend it. He died in *London* about 60 years of age.

Φ or L LUCAS VAN LEYDEN, a celebrated painter and engraver, used those 2 marks in some of his Plates.

L. H. stands for *Lambert Hopper*.

LIBERALITY is represented [in *Painting*, &c.] by a woman with a square forehead, in a white veil, an eagle over her head, holding a *Cornucopia* turned upside down in one hand, whence are scattered jewels and other precious things, and in the other hand fruits, and flowers.

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The eyes and front resemble the lion, the most liberal of all irrational creatures: The eagle denotes the habit of liberality, for she always leaves some of her prey to other birds. The *Cornucopia* shews that a generous spirit should do good, but not out of vain-glory. The white veil, that she has no sinister design nor project of interest.

**H**ANS LIENFRINCH thus mark'd certain plates, representing birds and hunting-pieces with ornaments.

**LONG LIFE** is represented [in *Painting*, &c.] by an ancient lady in an antique habit, laying her right hand upon the head of a stag with large horns, and many branches; holding a crow in her left hand.

The ancient dress denotes the revolution of many years; the old stag alluding to that which was found 300 years after *Julius Cæsar*, with a gold collar inscribed *HOC CÆSAR DONAVIT*. The crow outlives the stag, as it's said.

**SHORT LIFE** is represented [in *Painting*, &c.] by a lady of juvenile aspect, with a garland of various flowers, on her breast the figure of *Hemerobion* a little insect, in her right hand a rose-branch, round which is written, *Una dies aperit, conficit una dies*, i. e. *it is disclosed, or buds and dies in one day*; and in her left the fish *Seche*. The garland shews the frailty of man that loses his strength, as flowers fade, in a moment; the insect the shortness of life, which is but the space of one single day; the *Seche* is a fish that lives not long.

Of the **IMITATION** of LIFE.

1. First chuse a good master, with whom you may spend at least 2 days in a week; it might be better, if there were a society of about 10 or 12 young men, who might be of use in assisting one the other.

2. Then chuse a well-shap'd man, one with large shoulders, a fair breast, having strong muscles, full thighs, long legs, and of a proportional height, neither too tall nor too short, neither too thick nor too slender, but one of a very regular and exact proportion and shape.

3. Let this exemplar stand in a good posture, representing some noble action of life, letting the head turn itself to the right side, if the left be shadowed; and on the contrary; making the parts of the apparent shoulder something higher than that which is obscured; and the head, if it looks upwards, leaning no farther backwards than so that the eyes may be seen; and in the turning of it, let it move no farther than so that the chin may only approach the shoulder; making also the hip on that side on which the shoulder is lowest, a little to stick out, and that arm foremost where the leg is behind.

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4. The same things are to be observ'd in relation to all four-footed beasts; and this generally to make the limbs cross-wise to cohere together, and in the turning of it forward, backward, upward, downward, sideways, always to counterbalance it by the opposition of the other parts, the right knowledge of which is a considerable advance towards the *imitation of the life*.

5. These things being so prepared, let the person, who is to begin, first sketch on the paper his own ideas (being fixt in a convenient place and light, as is elsewhere directed) wherein he must endeavour to make every part agree with the whole; *first* in form; *secondly* in proportion; *thirdly* in action. After this beginning again, run over the draught, and bring it to a conclusion, as shall be shewn hereafter.

6. Observing always, that after you have sketch'd your whole figure, that you chuse a part (which you have most mind to finish) to perfect it, in regard that with the rest stands in a good posture. The reason for this is, because time will not always easily permit to compleat or finish a whole figure, unless to such as are expert artists; it being much better to bring one part to perfection, than to leave the whole imperfect.

7. It is also to be considered, after what manner you would have your figure to be seen, whether upon even ground, or from above; for accordingly the position of the exemplar must be made.

8. A young artist may also at his conveniency sometimes view the country, and practice drawing of landskips, representing nature as much as is possible; 1. in their distance; 2. in their mutual position; and 3. in visible aspect. By this means he will obtain a general and compleat understanding in the universal measures of all things.

9. In drawing of a face, consider the circumference of it, as whether it be round or long, fat or lean, great or small, so that ye be sure in the first place to take rightly the dimensions and bigness of the face.

In a fat face the cheeks must be made swelling out, and so make the face look as if it were square.

If it be neither too fat, nor too lean, it will, for the most part, be round; but if it be a lean face, the jaw-bones will stick out, and the cheeks fall in, and the face will be long and thin or slender.

10. When you draw the utmost circumference of a face, remember to take the head and all with it, otherwise you may be deceiv'd; in drawing the true bigness of a face, you must also view and consider judiciously all the gentle master touches, which give the spirit and life to a face, and discover the grace, affec-

tions, and dispositions of the mind, wherein lies the excellency of the art and glory of the artist.

11. A *smiling* countenance is display'd by the corners of the mouth, when they turn up a little.

A *stay'd* and *sober* countenance by the eyes, when the eyelids come somewhat over the balls of the eyes.

A *frowning* countenance by the forehead, by the bending of the eye-brows, and some few wrinkles between the 2 eye-brows, about the top of the nose.

12. A *laughing* countenance is represented by the universal composition of the whole face.

An *angry* countenance is discern'd by extraordinary frowning. And there are also some touches about the eyes and mouth, which give a kind of life and spirit to a draught.

13. A graceful posture is a principal thing to be observ'd in every picture; all things are to be express'd with proper actions; to wit, in their true and natural motions, according to the life and spirit of them.

*Majesty* is to be express'd in a *king*, by delineating him in such a graceful posture, as may cause the spectators to behold him with reverence.

A *soldier* should be express'd in such a posture, as indicates the greatest boldness and courage.

A *clown* should be drawn in a sordid and clownish posture.

A *servant* or *page* should be express'd in a waiting and diligent posture.

In all manner of draughts after the life, the inward affections of the mind should be lively expressed by the outward actions motions, and gestures of the body.

14. But in order to attain an exquisite knowledge of these things, it will be necessary to observe the works of the most famous masters, and to strive to imitate the examples of those, who for a long time had accustom'd themselves to draw all varieties of gestures and postures; as the actions of combatants fighting at cuffs, wrestlers, stage-players, fencers, the enticing allurements of courtezans, riding the great horse, tournaments, &c. wherein the motion of the eyes and the hands, and the carriage of the whole body are exactly to be taken notice of, if you would in drawing express any thing to the life.

15. And in order that it may appear the more natural and not forced, you must use a kind of carelessness and looseness in your draught, that the body may not be made stiff in any part; but that every joint may have its proper bendings, that the intention of the figure may not be lame, and the joints as it were stiffen'd, that every limb may have its proper freeness and looseness, agreeable to the natural life of the picture.

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16. In order to be able to make every thing thus naturally accord, the life must be diligently observ'd. No action must be forc'd beyond nature; if a person be represented turning his head over his shoulder, you must not turn it more than nature will admit. Nor should it come short of what bounds nature has allow'd it; but rather be quickened to the highest pitch.

As if you were to draw a man fighting, either in endeavouring to strike, or avoid the stroke of his enemy; in running, wrestling, leaping, &c. you must be sure not so much to overdo nature, as to express a posture which cannot be imitated with his natural body.

### Of LIGHT and SHADOW.

1. Set Lights and Shades in their proper places, in such a just and equal proportion as nature herself gives, or the life requires, and as would give a true idea of the thing you would represent: so that it is not any colour whatsoever, nor any single strokes which are the cause of it; but that excellent symmetry of Light and Shadow, which gives the true resemblance of the Light.

2. Take care in *shadowing*, that you do not spoil your piece by too gross a darkness, whether it be hard or soft.

3. This observation of *Light* and *Dark*, is that which causes all things contained in your work to come forward or fall backward, and makes every thing from the first to the last to stand in their due and proper places, whereby the distances between thing and thing seem to go from you or come to you, as if it were the work of nature itself.

4. Suppose it be a figure of plaister, take good notice what appears forwards, and what backwards, or how things succeed one another; then consider the cause which makes them in appearance either incline or recline; and also the degrees of light and darkness, and whether they fall forward or backward: and accordingly in your draught you must give but gentle touches, and after that heighten by degrees, according to what you copy after, and as your own ingenuity shall direct.

5. Those parts which appear highest in your pattern are to be heightened in your work. The greatest light that can be given on white paper is the paper itself; all lesser lights must be faintly shadowed in proportion to their respective degrees.

But upon coloured paper, white crayons and tobacco-pipe clay are used for the first and second heightening, each in their proper places, as more or less light is required, which is a singular observation in this manner of drawing.

7. You ought also to avoid the heightening of too many places, nor any thing more than is needful, or that is near th

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dark or shadows, or any out-line, (except where you intend some reflection) lest the work should appear hard or rough.

8. In heightening of such figures as require great light, put the greatest light in the middle, and the lesser towards the edges for the making the work the more perspicuous.

9. *Lastly*, Leave on the ground of your paper faint places, sufficient between the light and the shades, that they may appear pleasantly to the eye with a singular plainness and smoothness.

10. Reflection is to be used in delineating glittering or shining bodies; as glass, pearl, silver, &c. Let the cause of the reflection, be it more or less, be seen in the thing it self.

11. In plain drawing, lay all your shades smooth, whether it be in hatching or smutching, keeping every thing within its own bounds; and this is done by not making your shades too hard, or putting one shadow upon another too dark.

12. Take care that the greater parts of Light and Shadows, and the small parts intermixt in the same, may always so correspond, as thereby to make the greater the more apparent.

13. Let the highest Light in a whole picture (if any darkness shall stand in the middle of it) appear darker than it really is; and in working always compare *Light* with *Light*, and *Dark* with *Dark*; by which means you will come to know the power of each, and the general use of them in all operations.

14. Place all your Lights one way, through the whole work, either in figure, face, or garment.

15. If the *Light* falls sideways on the picture, the other side, which is farthest from the *Light*, must be made the darkest, and place all the *Lights* together on the other side; and not confusedly on both sides; as if it stood in the midst of many *Lights*: for the body cannot be enlightened equally in both places.

16. But if you express a dungeon or prison with a torch lighted in it, you must observe that every thing in it, as well as the garments, must receive their Lights from it; and for that reason must all be shadowed on the contrary side; which is to be observed in all shadowings on the same side.

17. The true and natural disposition of light is that which gives the principal grace to a picture; for that without its due light is clearly another thing.

18. And also it may be beautiful in its kind, so far as it is wrought; but if it shall be afterwards shadowed without judgment or art, so that the *Shadows* be placed confusedly where the *Lights* ought to be; or on the contrary, the *Lights* where the *Shadows* should be, and the *concavities* and *convexities* out of their natural situations, the picture will not only be confused, but entirely spoiled.

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19. Whereas, on the contrary, the lights being rightly disposed, it so greatly adds to the perfection of the figure, that it makes the flat or plain seem to be *embossed*.

20. And thus light being rightly disposed, effects that in the *painter's* work, that substance and matter does in the *carver's* work; inasmuch, that the figures seem to be embossed outwards; such is the force of *Light* and *Shadows*.

21. And herein you will find admirable *scenes* and *fore-shortenings*, proceeding purely from the true disposition of the *Light*, without which the figure would not only seem to be imperfect, but also would lose much of its grace, tho' it were otherwise well proportioned and placed.

22. This *Light* is the formal cause or reason why coloured things are seen, whose shapes and images pass through the eye to the imagination; and especially enlighten the eyes in which the image is formed; which first passes to the common *sensorium*, afterwards to the fancy or imagination, and lastly to the understanding, by which every thing is discovered to be what it really is.

23. In respect to this *Light*, three things occur to our visive faculty, *viz.* the visual lines, the coloured body, and the faculty of seeing, which is in the eye.

24. The *visual lines lightened* (which are the proper subject of *perspective*) come to the eye in a pyramidal form, the base of which pyramid rests in the object, and the cone or angle of it comes to the eye more blunt and obtuse, if the said object be near, but more sharp or acute if it be farther off; whereby it is not so clearly or easily discerned as it would otherwise be.

25. The *coloured object*, or body, comes not to the eye, but its visible spaces or shapes are diffused through the clearness of the air into the eye; which species are only certain images like those we see in a glass.

26. And if the coloured body stand near to this image, it comes to our eye in the same quantity and bigness of the angle of the pyramid, which being obtuse or blunt, makes the image appear to be as large as indeed it is, and so discerned the more distinctly.

27. But if it be placed afar off, the visible species appears less, according to the proportion of the distance, and acuteness of the pyramidal angle.

28. The *faculty of seeing*, is formed of the concurrence of the other two things, *viz.* the visual lines, and the coloured body; which informs the eye by reducing it from mere ability into act, and so performing its operations, and causing the thing also to be seen also more apparently and distinctly.



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29. From hence it is plain, that the self-same body cannot be equally enlightened in all places; because the *Light* does not directly illuminate any more than that part which is directly opposite to it: the other parts which are more oblique to it, are more imperfectly illustrated; by reason of the interception or obliquity of an opaque body, through which its beams cannot pierce.

30. From the several distances of the eye to the parts of the same body; for as the first part of the body is seen and placed nearest the eye, and so comes to it with a more obtuse angle, so being more enlightened, it is also seen more distinctly: whereas the other parts being farther off, come to the eye in a more acute angle, and being lesser enlightened, cannot be so plainly seen.

31. If two, three, or four men, stood one behind another, all of them equally receiving the light; yet they do not in respect to your eye: and therefore, by the former doctrine, you must paint the second, which is farthest off from the eye, darker, the third darker than that, and the fourth darkest of all.

32. The reason is, because the second standing farther off, comes to the eye with a lesser angle (as aforesaid) whereby it cannot be seen so evidently as the first; the same reason is for the third, fourth, fifth, &c.

33. The same thing is also to be understood, if the visible species of one or many objects be seen sideways; for according to their distance and obliquity of the eye, so you must shadow them.

34. That part of the body must be made lightest, which has the light most opposite to it: if the light be placed above the head descending, then the top of the head must be made lightest; the shoulder next lightest; so you must shadow by losing the light by degrees.

35. That part of the body which stands farthest out, must be made lightest, because it comes nearest to the light, and the light loses so much of its brightness, by how much any part of the body bends inward; because those parts which stick out, do hinder the glory and full brightness of the light from those parts which fall any thing more hollow.

36. Therefore, by how much one part of the body sticks out beyond another, by so much it must be made lighter than the other; and on the contrary, so much the darker.

**LIGHTS** [in *Painting*, &c.] are those parts of a piece, which are illumined, or which lie open to the luminary by which the piece is supposed to be enlightened; and which, for  
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this reason, are painted with bright vivid colours; and in this sense *Lights* are opposed to shadows.

*Light* is also used for the luminous body that emits it; there are various kinds of *Lights*; general lights, as the *air*; particular lights, as a *candle*, the *sun*, a *fire*.

Different lights have different effects on a piece of painting, and occasion a difference in the management of every part.

Therefore much depends upon the painter's chusing a proper *Light* for his piece to be illumined by, and a great deal more in the conduct of the lights and shadows, after he has pitched upon the luminary.

The strength and relievo of a figure, as well as its gracefulness, depends entirely on the management of the *lights*, and the joining of these to the shadows.

The light that figures in a piece of painting receive, are either direct or reflected; to each of which special regard must be had.

The doctrine of lights and colours makes that part of *painting*, called the *clair obscure*.

### OF LIGHT, SHADOW, and COLOUR.

The drawer, engraver, and painter, ought all to pursue one and the same intention, and to be under one and the same conduct.

What the drawer or engraver makes round with the *crayon*, or steel instrument, the painter performs with his pencil, casting behind what is to be made less visible by diminution, and breaking of his colours; and drawing forwards by the most lively colours and strongest shadows, that which is directly opposite to the light, as being nearest and most to be distinguished.

2. If solid and dark bodies are placed on light and transparent grounds, as sky, clouds, waters, &c. those dark bodies, &c. ought to be more rough, and more to be distinguished than those with which they are encompassed; that being strengthened by the lights and shadows, or colours, they may subsist and preserve their solidity upon those transparent grounds.

3. In the mean season those light grounds, as sky, clouds, waters, being clearer and more united, are to be cast off from the light to a farther distance.

4. Two equal lights must never be made in one and the same picture; but a bigger and a lesser: the bigger to strike forcibly on the middle, extending its greatest clearness on those places of the design, where the principal figures of it are, and where the strength of the action seems to be; diminishing it gradually, as it comes nearer and nearer to the borders.

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5. This is evident in statues, set up on high in publick places, their upper parts being more enlightened than the lower, which ought to be imitated in the distribution of light.

6. You must avoid strong shadows on the middle of the limbs, lest the abundance of black, which composes those shadows, should seem to enter into them, and seem to cut them; rather let those shadowings be plac'd round about them, thereby to heighten the parts; making great lights to succeed great shadows.

7. On this account *Titian* said, he knew no better rule for distribution of lights and shadows, than his observations drawn from a bunch of grapes.

8. Pure white, either draws an object nearer, or sets it off to a farther distance: it draws it nearer with black, and throws it backwards without it: but pure black (above all other colours) brings the object nearer to the sight.

9. The light (being altered by some colour) never fails to communicate something of that colour to the bodies on which it strikes: and the *medium* of air, through which it passes, has the same effect.

10. Bodies which are close together receive from each other by reflection that colour, which is opposite to them, *viz.* they reflect on each other their own proper colour.

11. If a design is fill'd with many figures, you must always endeavour an union of colours, for fear, that being too different, they should embarrass the sight by their confusion with the great numbers of their members, separated by certain folds.

12. And for this reason the *Venetians* paint their *draperies* with colours that are nearly related to each, and scarcely distinguish them any other way, but by the diminution of lights and shadows.

13. Those parts of a picture, which are plac'd foremost or nearest to the view, should always be more finish'd than those which are cast behind; and ought to be more manifest than those things, that are transient and confus'd.

14. Things situated at a distance, tho' they be many, yet ought to be made but one *mass*. As the leaves on the trees, a flight of birds, billows in the sea, &c.

15. Let those objects, which ought to be separated, be manifestly so, and that by a small and pleasing difference; but on the contrary, let not those things be separated that should be contiguous; and where there are two contrary extremities, let them never touch each other either in colour or light.

16. Various bodies are every where to be of different airs and colours; that those which are placed behind, may be united together,

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gether, and those which are plac'd foremost may be strong and lively.

17. In painting either a half figure or a whole one, which is to be placed before other figures, it ought to be placed nearer the eye, and next to the light: and if it is to be painted in a large place, and at a distance from the eye, then you ought not to be sparing of great lights, the strongest shadows, and the most lively colours.

18. But a *meridian* light must not be put in a picture, because there are no colours that can sufficiently express it; but rather a weaker light; as that of the morning or evening, whose *whiteness* is allay'd, and the fields are (as it were) gilded by the sun-beams; or such as appears after a shower of rain, which the sun gives through the breaking of a cloud.

19. Those parts which are nearest to us, and most raised, must be coloured strongly, as it were sparkling: but those parts on the contrary more remote from the sight towards the borders must be touch'd more faintly.

20. The field or ground ought to be free transient light, and well united with colours, which have a friendly agreement with each other; and of such a mixture, that there may be something in it of every colour, of which the work is composed, and let the bodies mutually partake of the colour of their ground.

21. The whole picture ought to be made of one piece; in doing which, you must avoid, as much as possibly you can, to paint dryly.

22. Let your colours be lively; but not look as if they had been rubb'd or sprinkled with meal, *viz.* you must take care not to let them look pale.

23. When a picture is drawn by the life, nature must be exactly followed, working at the same time on those parts, which resemble one another, *e. gr.* the eyes, the cheeks, the nostrils, and lips, so that you should touch the one, as soon as you have given a stroke of the pencil to the other; lest by interruption or distance of time, you should lose the idea of those parts, which nature has made to resemble each other.

24. Thus you will, by imitating nature, feature by feature, with just and harmonious lights and shadows, and proper colours, give to your picture that liveliness, that it will seem, as if it were perform'd by the living hand of nature.

25. Smooth bodies, such as crystal, glass, gems, polish'd metals, stones, bones, woods, japans, things covered with hair (as skins, the beard, head;) also feathers, silks, and eyes, which are of a watery nature; and those things which are liquid as water, and such corporeal species as are reflected by them; and all that either touches or is near them, ought to be painted and united  
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on their lower parts, but should be touched above boldly by their proper lights and shadows.

26. Let the parts of the picture so much harmonize, that all the shadows may appear as if they were but one; embrace whatsoever may be assistant to you in your design, and shun whatsoever may be disagreeable to it.

27. Do not make any touches either with pencil, crayon, or graver, before you have well considered and fix'd upon your design, especially as to the outlines, nor 'till you have present in your mind a perfect *idea* of what you would do.

28. You may be assisted in many beauties, by means of a looking-glass, which you may observe from nature; as also by those objects you may see in an evening, where you have an ample field and a large prospect.

29. Those things that are painted, to be seen in little or small places, must be touch'd very tenderly, and be well-united by gradual approach and colours; the degrees of which ought to be more different, more unequal, more strong, and vigorous, as the work is more distant.

30. If the picture is to be plac'd where there is but little light, the colours ought to be very clear; but if it is strongly enlightened, or in the open air, the colours ought to be very brown.

31. Large lights are to be painted as nicely as possibly can be, and you must endeavour to lose them insensibly, in the shadows which succeed them, and encompass them about.

32. The eye is to be gratified in the first place, even before all other considerations, which may cause difficulties in the art; which in itself has none; the compass and design ought then to be rather in your eye, and in your mind, than in your hand.

33. Avoid objects which are full of hollows, which seem broken in pieces, or refracted, which are little, and are separated, or in parcels; things which are rude, uneven, ill-coloured, and are displeasing to the eye; or which are parti-coloured, and have an equal force of light and shadow.

34. All things ought to be avoided which are obscene, impudent, cruel, poor, and wretched, fantastical or unseemly; things which are sharp and rough to the feeling; and all things which corrupt their natural forms, by the confusion of their parts, and are entangled in each other.

35. But you should chuse those things which are beautiful, even in the utmost degree of perfection; that have something of magnanimity or greatness in them, and whose sketches or outlines will be noble and magnificent; which will be distinguish'd pure, and without alteration clear, and united together, compos'd of great parts; yet those but few in number, and distinguish'd

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stinguisht'd by bold colours, and such as are related, and are harmonious to each other.

36. Tho' nature ought to be followed in many, and in most things, yet beginners should not be, at first, too sedulous in following nature, lest their works seem starch'd or stiff; but should begin with a certain carelessness, freedom, and boldness, which will facilitate and assist them in all their after endeavours, in order to the attaining the perfection of the art.

37. In the mean time they ought to learn and qualify themselves with proportions, and connection of parts, and how to fix the sketches or out-lines, and often to view and examine exquisite originals, and all the insensibilities and sweetneses of the art, which will be attain'd by viewing the works of a skilful master, rather than by practice alone.

38. After you have done some part of your piece, set it by for some time without looking on it, then view it again; by which means you may chance to discover some faults or errors, or excellencies of your work, which you may either mend, avoid, or advance according to your skill and discretion. It will be in vain for you continually to pore over your work, and dull your genius in spite of nature and your present inclination.

39. When you are walking in the streets, fields, and country, you should observe how nature plays, and is disposed, and the particular airs of the various objects; their postures, motions, and passions, and with what unconcern'd freedom they display themselves.

40. And whatever you think worthy to be observed (tho' it be but in the representation of a country clown, leaning with his breast upon a staff, as tho' talking unconcernedly with a neighbour in field, &c.) either upon earth, in the air, fire, or waters; while the species or ideas of them are fresh in your mind, fix it upon your mind: and by this means furnish your imagination and judgment.

41. Such objects as are of divers natures, and which are aggrouped or combined together, are agreeable and pleasant to the sight; and so likewise are all those things which are performed with freedom and ease; because they appear to be full of spirit, and to be, as it were, animated with heat and fire.

42. But these things are not to be expected to be attained to, till after a long exercise, and much practice; and till they are thoroughly weighed and considered in your judgment and understanding: It is a point of art to conceal from beholders the labour and pains you have bestowed upon a piece.

43. If you would arrive at an excellence in the art, you must endeavour after a ready apprehension, a discerning judgment, an inclination to learn, a sublime sense, a warmth, or fervor

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fervor of soul, and a greatness of mind. If to these be added youth, diligence, a competency of fortune, a skilful master, and good affection to the art (without which it will be impossible to attain any excellency therein, or arrive to the glory of your predecessors) but by these assistances you need not despair of being able to follow them very close, if not overtaking them.

*The LIGHT*  
*The ITALIAN* } *Way of Painting.*

*How to draw a landskip, flowers, cattle, or any other figures you design to paint.*

You must first take an oiled paper, and lay it upon a print or painting; be very careful that the paper is thoroughly cleansed with the crum of bread; then draw what you design with black, and afterwards turn the said paper on the wrong side: touch all the lines you have drawn with a piece of red chalk; you need not chalk them very strong, but faintly.

Then lay the chalked side of the oil'd paper upon the leather or paper, and with a porcupine's quill draw the lines over, not leaning too hard upon it, and you will have all the lines appear very plain upon the paper or leather.

After you have thus prepared your paper or leather, by drawing your design, take a little flake white, mixed with gum, as the other colours are, dip your pencil into the white of eggs, (let them be well beat first) according to what quantity you use; and let the white seem transparent: but be careful that you don't put too much egg into it; because it will make it of too slimy a substance.

Then with your pencil lay all over the figure or landskip with the said flake-white, observing at the same time to lay it very thin.

When it is dry, begin to colour the figures first, and then the landskip; because the figures being coloured first, will be fuller and clearer, and then you will see better to colour the landskip: but you must be very careful in doing this, that you don't go over any of the figures, but keep them and the landskip clear and in their proper colours; because if in colouring the landskip you go over the figures, you will not bring it to its proper colour, but be in danger of spoiling the figures. Therefore be very careful in colouring, and give every thing its proper colour, whether cattle, landskip or any other figure; without running one into or over another; but keep all clear and in their proper places.

*What GUM is to be made use of.*

The most proper for this use is gum *Arabick*, which is indeed preferable to all other gums.

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The manner of using it is as follows: put as much as you think fit into a gallipot, cover it with water, and when it is well dissolved, pour it off into another gallipot, and with a stick beat it up till it is fine, and thick as an oil. If what you pour off at first is too thin, take more of the thick which is left in the other pot, and put to it, and beat it up till it is as thick as an oil.

Be careful in this; because if the gum is not well prepared, the colour will fly and break off.

*What COLOURS are to be made use of.*

Umber, burnt and not burnt,  
 Red-Oaker ground,  
*English*-Oaker ground,  
 Red-Lead washed,  
 Blue-Smalt mixed in a shell,  
 Carmine mixed,  
 Blue Verditer mixed,  
 Flake-White ground with gum upon a stone,  
*Dutch*-Pink ground and kept moist,  
 Rose-pink ground,  
 Lamp-black ground,  
 Blue Litmouse, which is sold at the potter's,  
 Gamboge steeped in water,  
 Sap-Green, after the same manner,  
 Ultra-marine for a fine piece; otherwise blue smalt, or  
*Prussian* blue will do as well.

Indico, the best; not indico blue, but *la ouge* indico.

As to these colours, some are to be ground, some steeped, some washed, and some burnt and ground; the manner of doing which, is as follows.

Flake-White is to be ground with gum thus: Lay the flake-white upon a stone, and put as much gum to it as will make it so stiff that you can hardly move the muller round; then add water to it by little and little, till the colour is of the thickness of an oil.

Umber is burnt thus: put as much of it into the fire as you think fit, and let it continue there till it is red-hot: then take it out, and grind it very fine with water first, and when it is pretty dry, add gum to it till it is of the same substance with the flake-white, and put but a little water to it, because the burning takes away the nature of binding.

Umber that is not burnt is easier to grind.

Add but a little gum to it, and grind it to the thickness of the other colours.

Red-Oaker must be ground after the same manner as the unburnt umber; only take care to pick out the stones that are frequently found in it.

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*English*-Oaker must be done after the very same manner.

Red-Lead is to be washed as follows: but in buying it you must be sure to chuse that which is palest, for that runs the finest: Put about a quarter of a pound into a vessel, then fill it almost full with water, skim it well with a spoon or stick, and in about a minute pour it off into a larger vessel.

You must take care not to pour it off too near the bottom: then pour in more water, and skim it, as before; let it settle, and pour it off, as before.

You may do this three or four times.

This done, pour the water from the lead, leaving only moisture enough to pour the lead into a chalk-stone, where it will immediately dry fit for use.

Masticoat must be washed in the same manner as you wash red-lead.

Blue-Smalt, you must buy the best you can get, and mix it after this manner: put as much as you think fit into a shell, and as much gum, prepared as aforesaid, as will wet it well, by mixing it with your finger: then add water to it, till it is of a proper thickness; thus you must do to most of the other colours, except the thin ones, which I shall speak of in their proper places.

Blue-Verditer must be mixed in a shell, after the same manner with the former.

Carmine, likewise, must be done in the very same manner, only you must not use quite so much gum.

Ultra-marine is prepared after the same manner.

When you have washed the red-lead, mix it in a shell, just as you do the other colours; which method must be taken in preparing masticoat.

Indico must be well ground with water first, and then prepared as the Umber which is not burnt.

*Dutch*-Pink must be ground first with water, and then with gum, but not so much of the latter as in the other colours.

Rose-Pink must be prepared the same way.

Lamp-Black must be ground with gum first, adding afterwards a little water.

Blue-Litmose must be soaked after this manner: put as much of it into a bason as you think fit, and cover it with water; let it stand thus several days, then pour it off, and you will have a very fine blue colour.

You may thicken it by setting it in the sun.

Sap-green must be steeped in a little leaden pot, or a shell, but not poured off: for which reason you must put no more water than what will just soak it, and then it is fit for use.

Gamboge may be done the same way.

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As to mixing the colours for laying in the faces, the method is as follows: first, you must have the white of eggs by you, well beaten, and poured off from the froth; put a little into a shell, and let it stand by you to dip your pencil in; and when you have prepared the other colours for a very fair face, take a little carmine, and the like quantity of red-lead, but let it most incline to the carmine; then dip your pencil into the egg, and mix it with the aforesaid colours, doing the same very thin; this you must do with all the other colours: but be careful of taking too much colour at a time, for the egg will make it swell.

As to mixtures: for a very fair face take carmine and red-lead, a little of each; let it incline most to the first, and put it in a shell; dip your pencil into the egg, and mix it with the said colours at the side of the shell; and then if you perform a young man's face, you must do as before, taking red-lead and yellow oaker, a little of each, but most inclining to the first. For a brown face, use red-lead unburnt, and a little rose-pink, mixed so well together as not to be easily distinguished: for yellowish flesh take red-lead and a little *Dutch*-pink; for a purpleish face, red-lead, rose-pink, and indico: if any other coloured face, that you may see in pictures, add some of these mixtures, according as your genius directs; but be sure to make them as flesh-like as you can.

For fair hair take unburnt umber, and a little yellow-oaker: for black, add lamp-black; for brown, take burnt umber and yellow-oaker; for yellow, which is commonly used for a fair face, take yellow-oaker and a little umber.

You must be sure not to put white in any of the colours; for after you have laid the prime-colour, as aforesaid, all must be worked up without any white.

As to garments, for blue ones take verditer, smalt, or ultra-marine, and finish as far as you can with the same colours worked deep.

Observe the thin part of the colour, lay the garments, and work strong with the thick part of the colour: for red, take carmine alone, or with red-lead, or with lake; for purple, blue-smalt and lake; for crimson, lake alone; for green, blue verditer and *Dutch*-pink, shaded with indico and *Dutch*-pink; for yellow, *Dutch*-pink shaded with umber; for a cloth-colour, rose-pink, indico, and burnt umber mixed, shaded with the same.

So likewise of any colour that you have, first lay the thin and shade with the deepest colour; and as to any colours mix them as you please, except the thin transparent colours, which

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will not bear it; and for linnen use thin *Dutch*-pink, shaded with unburnt umber and indico.

For cattle, you must imitate nature, or your pattern; it being so various, that there are hardly any rules to be set; only lay the first colours thin, as in the drapery, and shadow the first shades with the thickest part of the colour.

If you paint a white horse, dog, or fish, or fowl, let the first colour be *Dutch*-pink, laid on so thin as hardly to be discerned; let the next shade be indico and unburnt umber: if you do any of these in brown, take umber burnt or unburnt, shaded with the same; if grey, with black and white, or indico and white: you may colour some with red-lead, and *English*-oaker, or any other colour, taking care to shade with the same colour.

In landskips, for the sky, first draw out faintly the clouds in the sky, and then colour the sky with thin verditer, or smalt, leaving the clouds clear; then colour the clouds with thin *Dutch*-pink, and shade them with a reddish purple, made of red-lead, rose-pink, and blue-smalt; then finish the sky with the thick part of the blue, and so intermix the colours by degrees, that they may seem to be laid on all together, like a fine print or picture.

Trees must be coloured with blue verditer, and unburnt umber, if you design their colour to be a blue misty green, adding, for difference, rose-pink or red-oaker, or yellow oaker, red-lead, or carmine; taking care that it inclines to a greenish colour, for those which are to appear near.

For a blue-green, take blue verditer and *Dutch*-pink; if yellow, add more *Dutch*-pink; if reddish, add red-lead, or carmine; for deep green, indico and *Dutch*-pink, shaded with the deepest part of the colours.

For the bodies of trees, take umber and blue, or umber and yellow, or umber and green.

Imitate nature and good patterns.

In finishing garments, let the egg be quite laid aside, because it will give a deadness to the other colours; then take for the blue garments, ultra-marine in the darkest part, and it will look clear and well; for red, take fine lake, or carmine, in the darkest part of the reds; in purples, use carmine and litmose; in green, use verdigrease and indico; if bluish, add more indico; if yellowish, more verdigrease; for yellow, use lamp-black and gamboge, and a little litmose for a pale one; for a deep yellow, use carmine, verdigrease, and a little litmose.

To finish the faces, after you have shaded them, as before, take care not to use any egg: to shade the yellow, or red faces, use carmine, and verdigrease, giving the strongest touches with it,

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it, and smooth it upon the lighter part of the shade; but take care not to go over the light part with it, but keep in the first shades.

For fair faces, use carmine, verdigrease, and litmose; taking care not to go over the first shades.

Let these shades be faint for fair faces, only touched strong in the dark places with carmine and verdigrease; then take a little red-lead and carmine for the blush of the face; then take a little litmose, and touch the bluish shades very faintly; then look at the faces, and give them dark strong touches in the eyes, and a strong touch in the mouth; then look and see if the blush is bright and smooth, and it is done.

For fair hair of women, shade with carmine, verdigrease and litmose; sometimes add gamboge, for a very fair yellowish hair.

Take notice, first to lay the colours as aforesaid, then shadow the faces and hair, then the drapery, and then the landskip.

*Mr. WILLIAM LIGHTFOOT*, was a good *English* painter in perspective, architecture, and landskip. He began in distemper, but afterwards took to oil-painting; he was concerned in contriving and adorning some part of the *Royal-Exchange*. He died in *London* about 70 years ago.

*PIRRO LIGORIO* was scholar of *Giulio Romano*, lived at *Naples* and *Rome*, excelled in history and architecture, and died in the year 1573.

**LILY** [to paint in *miniature*] cover it with white, and shade with black and white; do the seeds with *orpiment* and *gall-stone*; and the green of the leaves and stalks with *verditer*, shaded with *iris-green*.

*The many-flowered LILY* [in *miniature*] for the first colour use *mine de plomb*, then *vermilion*, and in the strongest of the shades *carmine*, and finish with the same in strokes, which correspond with the turn of the leaf.

Heighten the lights with *mine de plomb*, and *white*, and imitate the seed with *vermilion* and *carmine*. Let the green be done with *verditer*, and shaded with *iris-green*.

*The DAY LILY*. There are three sorts of this flower:

1. *Gridelin*, a little reddish.
2. *Gridelin*, very pale.
3. *White*.

For the *first*, lay on *lake* and *white*, and shade and finish with a deeper mixture of the same, with a little *black* added to it, to sadden it, especially for the deepest places.

For the *second*, lay on white mixed with a very little *lake* and *vermilion*, so that these 2 last do hardly appear; then shade with *black* and a little *lake*, taking care to make the heart of the leaves next the stalk *redder*, which, as well as the seed, must

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be of the same colour, especially towards the top, and lower a little greener.

Let the stalk of the seed be done with *mafticote*, shaded with bladder-green.

The other flowers of this sort are done with white alone, and shaded and finished with *black* and *white*.

The stalk of these last, and the green of them all, must be of the *sea-sort*, shaded with *iris-green*.

LIME, calcined stone, marble, free-stone, chalk, or other matter, burnt by a large fire, in a kiln or furnace built for that purpose; for the most part to be used afterwards in a composition of mortar for building; the fire taking away all its humidity, and opening its pores, so that it becomes easily reducible to powder.

*Quick-lime,* } Is that which is as it comes out of the  
*Unslaked-lime,* } furnace; and *slak'd-lime*, is that washed or steeped in water.

*To dye Stuff a LIMON, or LEMON colour.* Boil the stuff an hour and a half with 3 pound of *alum*, 3 ounces of *ceruse*, and 3 ounces of *arsenick*; pour off the water, then put in fresh, and in the same kettle make a liquor of 16 pounds of *green dyer's-wood*, 3 ounces of pot-ashes, 2 ounces of *turmerick*; let them settle and boil; then pass the stuff quick through it, and it will be of a good lemon-colour.

*To dye Silk a LIMON-colour.* This dye must first of all be tenderly handled, and done in weak Suds, and may be regulated by comparing the colour with a *lemon*; which when done, rinse and dry it.

LIMNING, is the art of painting in water-colours; in contradistinction to painting, properly so called, which is done in oil-colours.

*Limning* is by far the more ancient kind of painting: the art of painting in oil is far more modern, it not being known till the year 1410, when it was found out by one *John Van Eyck*, a *Flemish* painter, better known by the Name of *John of Bruges*. Before his time all the painters painted in water and fresco alone, both on wooden boards, walls and elsewhere.

When they made use of boards for painting, they usually glewed a fine linnen-cloth over them, to prevent their opening, and then laid on a ground of white; they also mixed up their colours with water and size, or with water and yolk's of eggs, well beaten with the branches of a fig-tree; the juice of which being thus mixed with the eggs, was the mixture with which they painted their pieces.

In *Limning*, all colours are proper enough, excepting the white made of lime, which is only used in *fresco*.

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But the *azure* and *ultra-marine* must always be mixed up with size or with gum; because the yolks of eggs give yellow colours a greenish tincture.

But before these colours, tho' mixed with size, are laid on, there are always applied two lays of hot size: the composition made with eggs and the juice of fig-tree being only used for touching up and finishing, and to prevent the necessity of having a fire always at hand to keep the size hot; yet it is certain, that the size-colours hold the best, and are accordingly always used in cartoons, &c. This size is made of shreds of thin leather or parchment: to *limn* on *linnen* they chuse that which is old, half worn and close; this they do over with white-lead, or with a fine plaister beaten up with size; which when dry, they go over it again with a lay of the same size.

The colours are all ground in water, each by it self; and in proportion as they are wanted in working, are diluted with sized water.

If yolks of eggs are to be used, they are diluted with a water made of an equal quantity of common water and vinegar, with the yolks, white and shell of an egg; and the ends of the little branches of a fig-tree cut small, all well beaten together in an earthen pan.

If they would have the piece varnished, when finished, they go over it with the white of an egg well beaten, and then with varnish.

But this, however, is only to preserve it from wet; for the great advantage of Limning consists in its being free from any lustre; in regard that all its colours thus void of lustre, may be seen in all kinds of lights; which colours in oil, or covered with varnish, cannot.

### Of Preparations for LIMNING.

1. Be provided with two shells, or small glasses, to hold clean water; the one for tempering the colours with, and the other for washing your pencils in when they are foul.

2. Besides those pencils you limn with, have a large clean dry pencil, to cleanse your work from any kind of dust that may fall upon it: these pencils are called *fitch-pencils*.

3. A sharp penknife, for taking hold of any loose or straggling hairs that may come out of your pencil, either upon the work or among the colours; or to take out specks of any thing that may fall upon your card or table.

4. A Paper with a hole cut in it to lay over your card, to keep it from dust and filth to rest your hand upon, and to keep the Parchment from being sullied by the soil and sweat of your hand; as also for trying your pencils on before you use them.



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*Lay the shells or small glasses, water, pencils, or pen-knife all on your right hand.*

5. Be provided with a quantity of light carnation or flesh colour, tempered up in a shell by itself, with a weak gum-water, made of *white* and *red lead*, if it be for a fair complexion; to which add a little *masticote* or *English oaker*, or both, if it be for a brown complexion.

6. But you must be sure to take care, that the flesh colour be always lighter than the complexion you would represent; for that it may be brought to its true colour.

7. Place your several shadows, for the flesh colour, in a large horse muscle-shell in little places distinct from one another.

8. Lay a good quantity of white by itself, that it may be ready in all shadowings, besides what the shadowings are first mix'd with.

9. For *red* for the cheeks and lips, temper *lake* and *red lead* together; and *indigo*, or *ultra-marine* and white for blue shadows, as those under the eyes and veins.

10. For grey, faint shadows, *white* and *English oaker*, and sometimes *masticote*; for deep shadows, *white*, *English oaker*, *umber*; for dark shadows, *lake* and *pink*, which make a good fleshy shadow.

11. In making choice of a light,

*Let it be fair and large, one northerly and not southerly, and free from shadows of houses or trees; and all clear sky-lights coming in direct from above, and not transverse. As to the room, let it be close and clean, and free from the sun-beams.*

12. As to the manner of sitting;

Let the desk on which you work be so situate, that sitting before it, your left arm may be towards the light, that the light may strike sideling upon your work.

Let the person you are to limn, be posited in the same posture that he himself shall chuse, level with you, and not more than 6 yards from you at most.

13. Observe the person's motion, if never so small; for the least motion amiss, if not recall'd, will insensibly lead you into many errors.

14. When you have finish'd the face, let the person stand, not sit at a farther distance, 4 or 5 yards off, for your drawing the position of the clothes.

15. If you are to limn upon sattin, steep ising-glass for 24 hours in fair water, and then boil it in spirit of wine, until it grow very clammy, which may be known by dipping your finger in it; and after you have drawn your out-lines upon sattin, wash it thin over with an indifferent large pencil, as far as your out-  
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lines are, which will prevent the colours from sinking or flowing.

16. The better to prevent your colours from sinking into your card, paper, or parchment, you design to limn on,

Boil some roch-alum in spring-water; then take a bit of a sponge, and with it wet the backside of the paper that you are to draw on very thin: while the water is hot, be as quick in wetting it as you can; and this will hinder the colours from sinking.

17. In the last place, you must observe these general rules:

1. That if your colours peel, or will not lie on by reason of the greasiness of the parchment, then you must mix a little ear-wax, or civet, with them, and it will help them.

2. That the person you draw by, sit not above 6 foot from you.

3. That the person you draw by, sit in a higher seat than you that draw.

4. That you draw not any part in the face of a picture exactly at first; neither finish an eye, nose, or mouth, till the rest of your work come up, and be wrought together with it.

5. That when you have finished the face, let the party stand up, for you to draw the drapery by.

6. That *blue bice* is never used in a face.

7. That *black* must not be used by any means; as for the other shadows, your own observation must direct you.

### *The Practice of LIMNING, or DRAWING a face in colours.*

1. As to the beginning of the work: Having all your materials in readiness, lay the prepared colour on the card (answerable to the complexion presented) even and thin, free from hairs and spots over the place, where the picture is to be.

2. The ground having been thus laid, and the party placed in a due position, begin the work, which is to be done at 3 sittings; at the first sitting you are only to dead-colour the face, which will require about two hours time.

3. At the second sitting, go over the work more curiously, adding its particular graces or deformities, couching the colours sweetly, which will take up about 5 hours time.

4. At the third sitting, you must finish the face, perfecting all that has been left imperfect and rough; putting the deep shadows in the face, as in the eyes, brows, and ears, which are the last of the work, and are not to be done till the hair, curtain or backside of the picture, and the drapery be wholly finished.

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### 5. *The operation, or work at first sitting.*

Having laid the ground, or complexion, in the next place draw the out-lines of the face, which do with lake and *white* mingled: draw these but very faintly, that if you happen to miss, either in proportion or colour, you may alter it.

6. When you have done this, add red-lead to the former colour for cheeks and lips; but let it be but faint (for you cannot lighten a deep colour) taking care to make the shadows in their due places, as in the cheeks, lips, tip of the chin and ears, the eyes, and roots of the hair: don't shadow with a flat pencil; but by small touches, and so go over the face.

7. Strive, as near as possibly you can, in this dead-colouring, to imitate nature rather than to be curious.

8. Having put the red shadows into their due places, shadow about the colours and borders and balls of the eyes with a faint *blue*, and under the eyes and about the temples with a *greyish blue*; heightening the shadows as the light falls; also the harder shadows in the dark side of the face, under the eye-brows, chin, and neck.

9. Bring all the work to an equality, but add perfection to no particular part at that time; but imitate the life in likeness, roundness, boldness, posture, colour, and the like.

10. Lastly, touch at the hair with a suitable colour, in such curls, folds, and form, as may either agree with the life, or grace the picture: fill the empty places with colour, and deepen it more strongly than in the deepest shadowed before.

### 11. *The operation at the second sitting.*

As it has been before laid but rudely, so you must sweeten those varieties which nature affords, with the same colours, and in the same place, driving them one into another; yet so as that no lump or spot of colour or rough edge may appear in the whole of the work; and this is to be done with a sharper pencil than that you used before.

12. Having done this, go to the back-side of the picture, which, if it be a landskip, or a *blue* or *red* sattin curtain; if it be blue, temper up as much *bice* as will cover a card, which mix very well with gum; and draw the out-lines of the curtain with a pencil; as also of the whole picture: then on the whole ground on which you intend to lay the blue, lay with a large pencil thinly, or airily over the whole ground; and afterwards lay over the same a substantial body of colour, which ought to be done nimbly, keeping the colour moist, and not suffering any part to be dry, till you have covered the whole.

13. If the colour of the curtain is to be of a *crimson* colour; lay the ground of a thin colour, and lay the light with a thin waterish colour where they fall; and while the ground is yet wet,

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wet, lay the strong and hard shadows close by the other lights, with a strong, dark colour, tempered something thickish.

14. Then lay the linen with a faint white, and the drapery flat, of such a colour as you would have it be.

15. Observe what shadows in the face are too light or too deep for the curtain behind, and the drapery, and reduce each to their due degree of height; draw the lines of the eye-lids, and shadow the entrance into the ear, deepness of the eyes, and any eminent mark in the face, with a very sharp pencil.

16. In the last place, go over the hair, giving it the colour that it appears to have in the life, casting some loose locks of hair over the ground; which will cause the picture to stand as it were at a distance from the curtain.

17. Let the linnen be shadowed with *white*, *black*, and a little *yellow* and *blue*, the *black* being deepen'd with *ivory-black*, mixed with a little *lake* and *indico*.

18. *The operation at the third sitting.*

This third operation is taken up wholly in giving strong touches where you perceive occasion, in rounding, smoothing, and colouring the face; which to do, will be the better perceived after the curtain and drapery has been done.

19. In the next place, consider whatsoever may conduce to render the work as perfect as you possibly can, either as to casts of the eyes, moles, scars, windings of the mouth, gestures, or the like; and take care never to make your deepest shadows so deep, as they appear in the life.

20. *How to heighten and deepen the ground-colour for hair.*

If it be in miniature that you paint, the colour of the hair must not be so light as the lightest, nor so deep as the deepest shadow; but in a middle proportion between both, on which you may either heighten or deepen at pleasure.

21. If it be laid on with the lightest colour, it will require a long time to work it down; and if it be as dark as the deepest, it cannot be deepened lower with the same colour.

22. And besides, this ground-colour must be laid exceedingly even and smooth; and the quicker it is done, the better it will be.

23. A goose-quill pencil is the most proper to be used in doing this, and the temper of it ought not to be too thin; because if so, the parchment will appear through the ground, which ought to be covered; and you should rather go over it again with the same colour, than to let it appear so.

### Of LIMNING DRAPERY.

1. In drawing of garments be very careful in habiting every one, according to the degrees and functions of the person describ'd, giving them also their right or proper colours.

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As for example, *John Baptist* in a *hairy mantle*, *John the Evangelist* in *scarlet*, and the *Virgin Mary* is commonly represented in *purple* or *azure*, and the rest of the Apostles in *green* or *crimson*.

2. There are 2 ways of working *drapery*; the *first way* is us'd by the *Italians*, this is done with the point of a pencil, and hatching it. These are us'd chiefly in *miniature*.

3. Some places are touch'd all over alike, yet so as when it is finish'd, you may perceive the parchment in several places quite through the work; which is indeed too flight a way, and should rather be call'd *washing* than *limning*.

4. The *second way*, which is the best, is as follows:

First, lay a full, flat ground all over, where your *drapery* is to be, of the colour you design it to be; which being done, you will find it much easier to be wrought upon, and may be either heightened or deepened at pleasure.

5. If you would have the drapery *blue*, take an indifferent large pencil, pretty full of either *ultramarine*, or of *Dutch bice* well-prepar'd, and therewith lay the colours even and smooth all over the place intended for the drapery, and afterwards deepen it with *lake* and *indigo*.

Heighten it very faintly and fair in the greatest lights; the like is to be done in all the colours of drapery whatsoever.

6. *Crimson velvet*, *red*, *green*, and *blue*, may be heightened with fine shell-gold, to which it will give an admirable lustre and beauty, especially if some of the gold be mix'd with the ground colour itself, which will render it much the fairer.

After this manner great painters heighten all their works of architecture and buildings, especially in stately rooms and palaces.

7. Take care to draw the out-lines of the garment very true and faint, because the whole grace of a picture consists much in the outmost draught, and more than in the curious work within.

8. To do this, the garments must be well suited to the body, and made to bend and yield with it, and not strait and stiff where that bends.

9. In order to fit the garments rightly to the body, observe which part of the body bends in or out, that the garments may answer to the body upon the least turning any way.

10. In order to make the garment turn with it, you must consider where the body would be, if it were bare; and there take care to form the garments in the right place, making them to bend or fit out according to the joints or limbs, and sometimes the limbs must be made to appear plainly through the garments; and especially if they be driven with the wind, or  
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any other action, they must lie loose from the body. In such case they must be lightly express'd, and with a sort of transparency.

11. You must begin first at the upper parts of the garments, and so draw down that part of the garment (on both sides) which lies close to the body, before you draw the loose parts, which fly off from the body.

12. For if the loose parts should be first drawn, before those parts, which lie close to the body, are finished, you will be out before you are aware, and be apt to draw the body awry.

13. For this reason some great artists do draw lightly the naked body first, and clothe it with the garments afterward; by which means they can see the better to place the clothing rightly, and so as to hang even upon the body.

14. The largest folds must also be first drawn, and struck into the less; and you must be sure not to make one fold to cross another; and also break some large folds into less, and so make them narrower, where the garments fit closer.

15. Take care also to order the drapery, so that the folds may fall all one way, especially in a figure in a standing posture; tho' it will sometimes be otherwise in a figure in a sitting posture.

16. And as the garments of a standing figure, if in the open air, are liable to be driven by the wind, therefore they must be plac'd one way.

17. Take care also not to make folds, where the garments should fit streight and close, as on the breasts, knees, thighs, &c. which bear them out, and for that reason ought also to sit plain in such places.

### *For Colours for Drapery, &c.*

*For a bright red, temper Indian lake with native cinnabar.*

*For scarlet, temper carmine, and deepen it with Indian lake; or temper native cinnabar, and a little red-lead, and shadow it with Indian-lake.*

*For carnation, temper lake and white, and shadow it with lake.*

*For crimson, temper cinnabar, lake, and white, and deepen with lake.*

*For a peach colour, temper carmine and a little white, and shadow or deepen it with lake.*

*For a violet, temper fine Dutch bice with lake, and deepen it with indigo.*

*Note, That Indian lake is the best of all other lakes; but it being very scarce and dear, you may do well enough with Florence lake instead of it.*

*For an orange, mix the best red lead, and a little fine yellow masticote, and shadow it with gall-stone and lake.*

*For an orange tawney, mix cinnabar and light pink with a little yellow masticote, and shadow with gall-stone and lake.*

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For a *straw colour*, temper yellow *masticote* with a very little *cinnabar*, and deepen with dark *pink*.

For a *sky*, mix *ultramarine* with a little *white*, and deepen with *indigo*.

For a *purple*, mix fine *Dutch bice* and *lake* and a little *white*, and deepen it with *lake* and *indigo*.

Note, That as to all colours where *Dutch bice* is us'd, you should make choice of that which is fine, or else you will find that in working it will lie very rough and uneven, and not cover well.

For a *sea-green*, mix *bice*, *pink*, and *white*; and deepen it with *green pink*.

For a *French green*, mix one part of light *pink*, with 6 parts of *Dutch bice*, and deepen with *green pink*.

For a *poppinjay*, temper *pink* and a little *indigo*, and deepen it with *indigo*.

For an *ash-colour*, mix *cherry-stone* and *white*, and deepen with *ivory-black*.

For a *lion tawney*, mix *red-lead* and *masticote*, and deepen it with *umber*.

N. B. Take a special care, that when you temper or mix any of these colours for either a complexion or garment, that you temper them on your pallet or shell with your finger; and mix them all very well to make a good mixture, and not too waterish.

Also be sure to preserve all your colours from dust, and before you temper either in the shell, or upon your pallet, to brush it off with a large pencil, or hare's foot, or to blow it off.

1. In shadowing linnen, use black, white, a little yellow, and less blue; deepen the black with burnt ivory, mix'd with a little lake and indigo, or litmose blue. For a greater variety of colours, see the article DRAPERY, &c.

2. As for sattins and filks, and all other shining stuffs, they ought to have certain bright reflections, exceeding bright, with sudden light glances, especially in such places, where the strongest and brightest lights fall; and so by how much the garment falls the more inward from the light, by so much the reflections will be the less bright.

3. If the body drawn be in armour, if of silver, lay liquid silver all over for a ground, which let dry well, and then burnish it, and shadow it with silver indigo, litmose, and umber, according as the life shall direct you.

4. If the armour be of gold, lay the ground with liquid gold, as you did with silver, and shadow upon it with lake, English oaker, and a little gold; or thus,

5. Lay the finest shell-gold flat and smooth, on the place where the armour is represented; which when it is thoroughly dry, burnish



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burnish all over with a small *weesel's* or *dog's* tooth, set it into the end of a pencil-stick, but something longer.

6. For shadowing, temper *lake*, *Roman-oaker*, and *gall-stone*, with a little *shell-gold*.

7. The heightenings being burnished, are to be left bright.

8. In the fainter parts of the shadows, use a little *shell-gold*, and also in the deepest, which must be neatly and sweetly wrought into the *gold*.

9. Also temper *gall-stone* with *shell-gold*, and this will give an excellent lustre to all gold works.

10. Mix a little *black* in the darkest and deepest shadows, and the heightenings are only the first *gold* burnish'd bright.

11. As in armour, so also in brass-pots or kettles, or any glittering metal, where you see a sudden brightness in the middle or centre of light, from the shining quality and disposition of those things, by so much the reflections will be less bright, and on the contrary.

*Chased, embossed, or shining Armour.* 1. The lighter places of it must be most sparkling, which may be express'd by raising the high and round places, with a temper of *gall-stone* and *Roman oaker*; by touching with a pencil full of the colour over and over, in one and the same place, 'till the touches be rais'd over the other work.

2. Then cover over the rais'd work with the finest *shell-gold* (that is made at *Antwerp*) and burnish it with a *weesel's* tooth; and do the like, if it be silver emboss'd.

3. As for *silver armour*, lay on *shell-silver*, as directed for *shell-gold*; and when it is dry, burnish it as you do the *gold*.

4. As for shadowing it, temper *lake* and *indigo* with a very little *umber*, work all the shadows down even and smooth, according to the appearance in the life.

5. As to the *heightenings*, they are to be left to the silver (that having been brightly burnished) as in the gold. The thinner part of the shadows, being part of the depth of the shadows, must be temper'd with a little *shell-silver*, and wrought sweetly and neatly into the *silver*, being laid very flat and even, as has been said before.

6. A very good shadow for emboss'd silver, are burnt *cherry-stone*, *dark pink*, and *rust of iron*; as also are *ivory black*, mix'd with *dark pink*.

1. For *diamonds*, lay a ground of *liquid silver*, and deepen it with *cherry-stone black*; the deeper the shadow, the fairer the diamond.

2. For *emeralds*, or any *green-stone*, mix *turpentine* with *verdigrase*, and a little *turmeric root*, first scrap'd with vinegar, drying it, and then grind it to fine powder, and mix it.

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3. *For Pearls*, let your ground be *indigo* and *white*; the shadows *black* and *pink*: To express the roundness and lustre of the *pearl*, shadow it with *indigo*, *Cherry-stone black*, and *pink*.

Or you may lay the *pearl* with *white*, mix'd with a little *black*, a little *indigo* and *mastick*; but very little in comparison of the *white*; scarcely to the hundredth part: when this is dry, give the light of the *pearl* with a little *silver*, somewhat more to the light than the shadowed side. Then take a *white*, allay'd with *masticote*, and give it a compassing stroke underneath the shadowed side, which shews a reflection; afterwards, without that a small shadow of sea-coal undermost of all; but mind this, your *silver* must be laid round and full.

4. *For rubies*, first lay a ground of *silver*, to the bigness of a *ruby*, burnish it; then heating a small wire in a candle, with it drop upon the burnish'd place a little pure *turpentine*, tempered with *Indian lake*, and fashion it, as you please, with your instruments; let it lie a day or two to dry, and if it does not dry soon enough, add to the composition a little powder of *mastick*.

5. *For sapphires*, temper up *ultramarine* with pure *turpentine*, which lay upon a ground of *liquid silver* polish'd; which must be the ground for all stones.

#### Of LIMNING LANDSKIP.

All the various expressions of *landskip* are innumerable, there being as many as there are painters and fancies, and therefore not to be compriz'd within rules. But for the general, observe these which follow.

1. Always begin with the sky, sun-beams, or lightest parts first; next, those beams that are yellowish (which make of *masticote* and *white*;) next, the *blueness* of the sky, (which make with *ultramarine* or *smalt* alone) and mix *lake* and *white* for purple clouds.

2. At the first working lay the piece all over with dead colour, leaving no part of the ground uncoloured; but take care to lay the colours smooth and even.

3. Work your sky downwards towards the horizon fainter and fainter, as it draws nearer and nearer the earth, except in tempestuous skies; work the tops of mountains far remote, so faint that they may appear lost in the air.

4. Make low places, and such as are near the ground, of the colour of the earth, of a *dark yellowish* or *brown*, or *green*; the next to them of a lighter *green*; and so successively as they lose in distance, so make them abate in colour.

5. Do not make any thing that appears at a distance perfect, by expressing any particular signs or tokens, that it has; but express it as weakly and faintly, as it appears to the eye.

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6. Always place light against dark, and dark against light; by which means you may extend the prospect as tho' very far off.

7. Let all the shadows lose their force as they remove from the eye; always making the strongest shadows the nearest to hand.

8. Lastly, Boil an ounce of ising-glass in small pieces in 4 quarts of conduit-water, till the ising-glass is dissolved, and set it by for use: with this, mix spirit, or oil of *cloves*, *roses*, *cinnamon*, or *ambergrease*, and lay it on and about the picture, where it is not coloured (lest it should change the colours; but upon the colours use it without the perfumes) so it will varnish your pictures, and give them a gloss, and cause them to retain the beauty and lustre of their colours; and also take away any ill scent which they may otherwise have.

9. For trees, you must have a *dark green*, which you may make by mixing *verditer* with *pink* and *indico*; the deepest shadows of all in green, are made with *sap-green*, and *indico*.

*To preserve colours in Limning.* Temper a shell of *white* with a few drops of *rosmary-water* doubly distilled, or pure spirit of *rosmary*; and however dead and faded the picture was before, it will instantly become perfect white.

This water or spirit, also prevents the bubbles in *white* and *umber*, which are troublesome in grinding.

### *The sum of the Observations of LIMNING to the life in general.*

1. Let your table be prepared very exactly, as before directed.

2. Let the ground be of a flesh colour, tempering it to the complexion to be painted.

3. If it be a fair complexion, mix a good quantity of *red* and *white-lead* together something thick.

4. If the complexion be swarthy, or brown, mix with the former a little fine masticote, or *Englisb-oaker*, or both; always taking care that your ground be fairer than your complexion painted.

*For fairness may be shadowed or darkened at pleasure; but if it be sad or dark, you can never heighten it: for in limning, the picture is always wrought down to its exact colour.*

5. Lay the ground upon the card or tablet with a larger pencil than ordinary, free from spots, scratches of the pencil, or dust, and as even as possibly can be; and let the colour be rather thin and waterish than too thick; doing it very quick and nimbly, with two or three dashes of the pencil.

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6. When you have done this, prepare your shadows in order, as before directed.

7. Then draw the out-lines of the face with lake and white mingled together very fine; so that if you should err in your first draught, you may draw it true with a stronger stroke; the other line, by reason of its faintness, being no hindrance.

*These lines must be drawn, truly sharp and neat, with the greatest exactness imaginable.*

8. Take particular notice of the most remarkable and deep shadows, which retain in your memory, when you go over them with greater exactness; and (if you please) you may also draw the shape of that body, which is next to the face, viz. a little beneath the shoulders, with a strong and dark colour; which, in case of mistake as to proportion, may be easily altered.

9. The first sitting is employed in dead-colouring the face; the second, in the exact colouring and observation of the several shadows, graces, beauties or deformities, as they are in nature; the third sitting is to render smooth what was before left rough and rude, cloathing what was naked, and giving strong and deepening touches to every respective shadow.

10. The dead colour is made as follows:

Take of the aforefaid ground, at article 3. and 4, and mix it with fine red-lead, tempering it exactly to a dead colour in the cheeks and lips; taking an especial care not to make it too deep, which, if it be too light, you may deepen at pleasure.

11. The face is to be first begun to be coloured in the cheeks and lips, and something strongly at the bottom of the chin (if it has no beard); also over, under, and about the eyes, with a faint redness.

12. The ear is most commonly reddish; as also sometimes the roots of the hair.

13. When you have washed over the ground with this reddish or dead-colour, then shadow as well bold and strong as exact and curious.

14. A good picture, if it be only dead-coloured, and appearing near at hand to be very rough, uneven and unpleasant; yet being done and shadowed boldly and strongly, will appear very smooth, delicate, and neat, if it be viewed at a proper distance from the eye.

15. Therefore, curiosity and neatness of colour is not so much to be regarded, as bold, lofty, and strong expression of what is seen in the life.

16. The next thing you have to do, is, to use the faint blues about the corners and balls of the eyes and temples, which  
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are to be wrought out exceeding sweetly and faintly by degrees.

17. You must be sure to make the hard shadows fall on the dark side of the face, under the nose, chin, and eye-brows, as the light falls with somewhat strong touches.

18. When you have done, and smoothed the light shadows, in the next place work the hair into such forms, curlings, and dispositions as will best set off the piece.

19. First draw it with colours, neatly and to the life; then wash it roughly, as the rest; and in the next place compleat it: filling up the empty places with colour, and the partings of it with blue.

20. And whenever you would have your colours or shadows deep, and bold, be sure that you work them by degrees, beginning faintly, and increasing in strength.

21. First use the former colours in the same places again, driving and sweetening one into another, that no part may appear uneven, or with an edge or patch of colour; but all together equally mixed and dispersed, lying soft and smooth, like smoke or vapours.

22. When you have done this for an hour or two, then lay the ground for behind the picture of *blue*, or crimson, like to a sattin or velvet curtain.

23. If you make it *blue*, do it with *bice*, well tempered in a shell: first drawing the out-lines with the same colour, and with a small pencil; and afterwards wash over the whole ground with a larger pencil with a thin, waterish *blue*.

24. And in the last place, cover the same that you washed over before with a thicker colour, briskly; that it do not dry before all be covered, so will it lie smooth and even.

25. If the back ground be *crimson*, do it with *Indian lake*, in those places where the strong lights and high reflections fall, and do the light with thin waterish *lake*, and deepen with a thicker colour the strong shadows that are close by the light; which being done, the picture will be very much altered; for the beauty of these grounds will much darken and deaden it.

26. Then do over the apparel with suitable colours only flat, with heightening and deepening; and then go over the face again, and with a sharp and curious pencil reduce the shadows to smoothness and nearness; drawing the eyes, the lines of the eye-lids; the redness of the nostrils; shadow of the ears; deepness of the eye-brows, and the rest of the other remarkable marks of the face.

27. Sweetning the out-lines of the face (by darkening the ground from above the light side, and below on the dark side) that when the piece is done, the ground may stand as it were

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at a distance from the face behind; and that the face may appear to stand off forward from the ground.

28. In the next place, go over the hair, make it light or deep, according to the life: and in apparel make the several folds and shadows, and what else is to be imitated, as it is in the life itself; lightening the lines with the purest *white*, a little *yellow*, and some *blue*; and deepening with *ivory black*, and heightening with black, mixed with a little *lake* or *indico*.

29. When you have done this, and the person is gone, and the work is yet rough, polish it by your self, and labour to make it smooth and pleasant, filling up the empty places, and sweetning the shadows which yet lie uneven and hard.

30. Having finished the apparel, hair, and ground, next give strong touches for the rounding of the face, and consider, and add whatsoever may conduce to resemblance and likeness; as moles, smilings, or glances of the eyes, motion of the mouth, &c.

31. For which purpose you may find occasion of discourse, or cause the person to be in action, and to look merrily and charfully.

32. Remember, that the eyes give the life; the nose the favour; the mouth the likeness, and the chin the grace.

33. If you make the lightening of a fair-coloured drapery with fine shell-gold, it will add an admirable lustre, and be a singular ornament to the picture; and if this gold be mixed with the very ground itself, the apparel will appear much the fairer.

### *The dead-colouring of a whole figure designed for historical* LIMNING.

This is performed two ways:

1. By tempering a *flesh-colour* somewhat lighter than you design it shall be, after it is wrought down by the variety of *shadowing mixtures*, which flesh colour, you must temper in a large shell, because it requires a quantity; and the mixture must be good, neither too thick nor too thin.

2. Then, having taken a good goose-quill pencil full of the colour, lay it on the place where you design the figure, quick, even, and smooth; if you be not very brisk in laying it on, it will not lie even.

3. The other method is this; you may use the best flake white, well prepared, instead of *flesh-colour*, and lay it on with the same sized pencil as before mentioned, and so your dead-colour is as the oil-painters do, which must be done free, rough and boldest of all.

4. But take notice, that all the out-lines of your figure are first drawn with a *temperature* of flake and white, before the ground-

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ground-colour for the flesh is laid on: Also in dead-colouring the shadows which are next to the light must not be left too dark, harsh or hard, but faint, even and misty.

5. When you have done this, mix flake-white and a little red-lead, and with that touch up all the deep places both in face and body, as your judgment shall direct.

6. Let this be done exceeding faintly, because if it be laid too deep it cannot be heightened up again, without running the hazard of spoiling it; whereas if it be too light it may be deepened gradually as you please.

7. Make in the face a delicate faintness, or faint red, inclining to a purple under the eyes; then with the aforesaid mixture touch the tips of the ears, as also the cheeks, lips, and bottom of the chin, and so proceed to the sole of the foot, touching with the glowing colour in all the following muscles and places.

8. Then for the general yellowish, glowing shadows, mix *gall-stone and pink*, and add in some places a *little lake*, to the former mixture or temperature.

9. And whereas you will perceive in some parts of the body in the Life a faint *bluish*, this may be expressed with a temperature or mixture of *Indigo and White*; and thus you are to proceed, according to the subject you paint after, whether the life, or copying after painting.

10. All these Strokes are to be expressed after the manner of hatching with a pen, washing it along with gentle and fair strokes.

11. But be sure to take care in this dead-colouring, to cover your ground-colour, with the aforesaid red and other shadows.

12. You need not be over curious in the first working; but rather aim at a good, free, and bold imitation of nature, than an extreme neat, set, or stiff way.

13. Be not discouraged at the roughness of your colour; for you may work that down, and touch it by degrees with the other shadows, tho' you do not do it at the first.

14. After this, sweeten and heighten your shadows by degrees, according as the light falls.

15. Then touch it in some places with strong touches, and bring your work up together in these places to an equal roundness and strength; not finishing any part of the figure before the other; but viewing and working all the parts, curiously alike; but yet in a manner, as it were at random.

16. Then take notice of the rounding, colouring, and shadowing, or whatever else is requisite to the perfection of the work.

17. The fainter shadows being done, sweeten and work them into the red still.



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18. View over attentively all the variety of colouring ; and nicely delineate with your pencil those several varieties of nature, which were but rudely trac'd out before.

19. In doing this, use the same colour in the same places you had us'd before, working, driving, and sweetning the same colours one into another, that nothing be left in the piece with a harsh edge, uneven, or in a lump, but make all appear sweet, or driven one into another with the point of somewhat a sharper pencil than that which you us'd at first, so that the shadows may lie dispers'd, soft, sweet, smooth, and gently extended one into another, like air.

20. In the last place, take notice that skies, water-trees, plants, flowers, and ground, are all to be dead-coloured before the figures.

LINEAMENT is a fine stroke or line, observ'd in a human face, and that forms the delicacy thereof, being that which preserves the resemblance thereof, and occasions the relation of likeness or unlikeness to any other face.

It is by these, that Physiognomists pretend to judge of the temper and manners of people.

Painters use the word *Lineament* for the out-lines of a face.

LINNENS [in miniature] are painted thus ; having drawn your folds, as when you do drapery, lay on *white* all over, and then proceed and finish with a mixture of *ultramarine*, *black*, and *white*, taking more or less of this last according to the degrees you want of light and shade ; and for the deepest folds, take *bistre* and a little *white*, using it sparingly, and with artful touches ; and you may even take the former pure for the deepest shades, where you must express the folds, and lose them among the rest.

They may be made after a different manner, by laying on all over a very pale mixture of *ultramarine*, *black*, and *white*, and then proceeding in the manner above-directed with the same mixture, but a little deeper : And when the shades are striped and finished, you must heighten the lights with pure *white*, blending them with the first colour or ground. But of what sort soever you make them, when you finish them, prepare some yellowish tints for certain places, laying them on so lightly, as it were a wash, so as to be transparent, and neither to hide the striping nor the shades.

Yellow linnens are made of *white*, mixed with a little *oaker*, then proceed and finish with *bistre*, mixed with *white* and *oaker*, and for the deepest shades with *bistre* alone. Before you finish, lay on tints of *oaker* and *white* here and there, and others of *white* and *ultramarine*, as well upon the shades as lights, but very thin, and then stipple and scumble the whole together, and  
it

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it will have a fine effect; as you finish, touch up the extremities of the lights with *masticote* and *white*. These linnens and the former, you may stripe like *Egyptian* scarves, with blue, red, *ultramarine*, and *carmine*, a red one between two blue ones, very bright on the lights, and stronger in the shades. The heads of virgins are generally dressed with veils of this sort; and of the same are made a sort of handkerchiefs for an open breast, because they are very becoming to the flesh.

When you would have either the one or the other of them to be transparent, and shew whatever, whether stuff or flesh, is underneath, lay them on, at first very thin, and mingle with your shading colour, a little of that which is under them, particularly at the extremities of the shades, and touch only the extremities of the lights (only for the *yellows*) with *masticote* and *white*, and of the *whites* with *white* alone.

They are also to be made another way, especially when you would have them quite transparent, as muslin, lawn, or gauze, for this purpose you must begin and finish, what is beneath, as if nothing was to be over it; then heighten the brightest folds with *white* or *masticote*, and shade with *bistre*, and *white* or *black*, or *blue* and *white*, according to the colour you aim at; and taking away from the liveliness of the rest by foiling it over, tho' that be not altogether necessary but for the darkest parts.

*To take iron-moulds or stains out of Linnen.*

Take the juice of a *lemon*, warm it with a little powder of *alum* dissolved in it, wet it, and as it is wet, dry it with a spoon, wherein is a live coal; continue to do so for the space of two hours, and the spot or iron-mould will in a washing or two disappear. This will take out spots of *ink*, &c.

*An excellent way to take spots or stains out of Linnen.*

Take powder of burnt bone finely sifted, and place it between 2 boards, pressing it hard, with some of the powder on either side the spot, and in 2 days it will be quite vanished.

*Another excellent way to take spots or stains out of Linnen.*

Dissolve *bay-salt* in fair water, and steep the linnen in it, then take juice of *sorrel* and sharp vinegar, and rub the spot with them, suffering it likewise to soak in, and in so doing often it will disappear.

*To take away ink, stains, stains with fruit, &c.*

Take powder of *alum* half an ounce, juice of *housleek*, or *sen-green* 2 ounces, and apply them after the *alum* has been dissolved very hot, and the business will be done.

*How to keep Linnen laid up without using, from damage many years.*

The linnen having been wash'd, and well-dry'd in the sun, fold it up, and scatter in the folding the powder of *cedar-wood*,

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or *cedar* small ground, having first perfum'd the chest with *storax*, by which means not only dampness is prevented, but worms and moths.

*A pleasant water to preserve Linnen, or any other thing a long time, giving it moreover a curious scent.*

Take of *spike-flowers* 1 pound, *costmary* half a pound, *palm* a small handful, *penny-royal* the same quantity, *mace* an ounce, *orrace* powder half an ounce, soak these in white-wine, and distil them, and sprinkle your clothes in a fair day, let them be thoroughly dry, and then lay them up.

*To remove stains occasion'd by wine or vinegar.*

Steep the thing stained in *new milk* for a night, then apply *rennet* to the stain, rubbing it in, and by so doing twice or thrice, you will find it as fair as it was at first.

*To make Linnen that is turn'd yellow very white.*

Heat *milk* over the fire, and add to a gallon a pound of *cake soap* scraped in, so that it may dissolve; and when the clothes have boiled therein, take them out, and clap them into a lather of hot water, and wash them out speedily.

*To whiten cloth the best way.*

Buck your cloth well, and spread it upon the grass, and sprinkle it with *alum-water*, letting it lie abroad for 2 or 3 days and nights; then buck it again with *soap* and *fuller's earth*, and use it as before, and it will be both thick and white.

*To make any Linnen at the first appearance look like diaper.*

When it has been new wash'd, spread it upon a table, somewhat damp, and sprinkle it over with a brush dipt in *alum* and *rose-water*, in form and manner as shall best suit your fancy.

*To DYE LINNEN with crampenade.*

To every 3 ells of *linnen* use 1 pound of *crampenade*, and 6 quarts of water; set it over a fire 'till it begins to seeth, then put in 2 ounces of *galls*, and afterwards your *linnen*; then take it out often, and wring it, and put it into *alum* water: but if you would have the colour darker, you ought to have a lye of unslak'd lime or chalk-stones.

*To dye LINNEN thread or cloth, a good RED.*

Soak a pound of *samfleur* 24 hours in 2 gallons of water, heating it over a gentle fire; then add half a pound of rasp'd *Brazil*, 2 ounces of *vermilion*, and an ounce of *alum* dissolv'd in fair water, dip the *linnen*, and order it as other things.

*To take spots out of LINNEN.*

To 2 spoonfuls of the juice of *onion*, add as much *lime-juice*, wet the *linnen* 2 or 3 times, drying it as often by the fire; wash it out immediately in a good lather, and it will be done.

*How to thicken LINNEN cloth for skreens, &c.*

Grind *whiting* with *size*, and to prevent its cracking add a little

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little *honey* to it; then lay it upon the cloth with a soft and smooth brush, 2 or 3 times, suffering it to dry betwixt each time; and for the last laying, smooth it over with *Spanish white*, laid with *linseed oil*, the *oil* being first heated and mix'd with a small quantity of *litharge of gold*, to prepare it for the better enduring the weather, and by thus doing it will be lasting.

*How to make SPANISH WHITE.*

Grind *white chalk* with a tenth part of *alum* with fair water, 'till it is very soft, and afterwards bring them to a thickness, and make them into balls, lay them so that they may dry leisurely; then when you use them, heat them well in the fire.

**LINSEED**, a grain that has several useful properties, and yields by expression an oil, that has most of the qualities of nut-oil, and is accordingly often us'd instead of it in painting.

**LITHARGE** is of two kinds; the one *natural*, the other *artificial*.

*Natural Litharge* is a mineral sometimes found in lead-mines, reddish, scaly, brittle, and somewhat resembling *white lead*.

This *Litharge* is so exceeding rare, that the shops sell none but the *artificial*.

*Artificial Litharge* is of two kinds, *viz.* that of *gold*, and that of *silver*; or it is rather the same, with this difference, that the one having undergone a greater degree of fire than the other, has had different colours given it, and thence have proceeded the different names.

As to the *artificial Litharge*, authors do not agree as to what it is; some say it is a metallic scum rais'd on the surface of lead, when melted, having serv'd to purify *gold*, *silver*, or *copper*.

Others say it is a metallick smoak arising from those metals mix'd with the lead, us'd in purifying them; which sticking to the tops of chimneys in furnaces, is there form'd into a kind of scales.

Again others say, it is the lead itself, us'd in the refining of those metals, and especially copper; which last opinion appears the most likely, by reason of the great quantities of these *Litharges*, brought from *Poland*, *Sweden*, and *Denmark*, where *copper-mines* are more frequent than those of *gold* and *silver*.

**LIVER-WORT** *the plant to paint, &c.*

**LIVER-WORT** is sometimes red, and sometimes blue; as for the latter, let it be covered all over with *ultramarine*, *white*, and a little *carmine*, or *lake*; shade the inside of the leaves with this mixture; but let it be deeper except for the outermost, for which and the outside of all, add some *indigo* and *white* to deaden the colour.

For the *red*; do that over with *columbine lake* and *white*, very pale, and finish with less *white*.

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As for the *green* use *verditer*, *masticote*, and a little *bistre*; shade with *Iris* and a little *bistre*, but chiefly for the outside of the leaves.

**LIXIVIUM** is a liquor made by the infusion of wood ashes, or any burnt substances, which is more or less penetrating, as it is more or less impregnated, with salts and fiery particles, abounding therein. That which is left after the evaporation of such a liquor, is call'd a *Lixivial*, or *Lixivate salt*; such as all those are that are made by *incineration*.

*Lixiviums* are of notable use in extracting tinctures of vegetables for dying, staining, or painting colours.

L. K. A. signifies *Luke Kilian* of *Augusta*, engrav'd *Tintoret's* and *Spranger's* works.

L. } signifies *Lambert*, *Lombard*, or *Susterman*, or *Suavius*,  
L. L. } all which signify the same person.  
L. S. }

L. L. } stand for *Lorenzi Lolli Guido Reni's* scholar.  
*Lollius* }

**R**ENE or RENATO LOCHON made this mark under several portraits and works of *Polidore*, in the year 1651.

**P**PETER LOMBARDI, who engrav'd the works of Monsieur *Sampagna* us'd this mark.

### LOOKING GLASS.

*The method of working* PLATE or LOOKING-GLASS.

The matter of which *Looking-Glasses* are made, is much the same as that of other glass-works, viz. an *alkali* salt and sand.

But this salt ought not to be extracted from *polverine*, or the ashes of the *Syrian kali*; but that of *Barillia*, or the ashes of a plant of that nature, of the genus or same kind of *kali's*, as that which grows about *Alicant* in *Spain*.

It is indeed very rare for us to procure the *Barillia* pure; the *Spaniards* commonly mixing another herb with it in burning it, which alters the quality of it; or else they add sand to it to augment its weight.

This may be easily discovered, if the addition be not made, 'till after the boiling of the ashes; but if it be done in the boiling of them, it is impossible to discover it.

This adulteration of the matter is the cause of those threads and other defects that appear in plate-glass.

The manner of preparing this salt, is the cleansing it well from all foreign matters; pounding or grinding it with a kind of mill, and sifting it pretty fine.

The sand must be sifted and wash'd so often, 'till the water that comes from it is very clear; then it is to be dried again, and

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and mixt with the salt, and the mixture pass'd through another sieve.

When this has been done, the mixture is put into the annealing furnace for about 2 hours; in which time it becomes very light and white; and being in this state it is call'd *frit* or *fritta*, which must be laid up in a clean dry place, for a year at least, or more, to give the materials sufficient time to incorporate.

When this *frit* is to be us'd, it is laid some hours in the furnace, and the fragments or shards of old and ill-made *glass*es are to be added to some of it, these shards having been first calcin'd, by being heated red-hot in the furnace, and afterwards cast into cold water.

*Manganese* (which see) must also be added to this mixture, to promote the fusion and purification of it.

*The method of blowing* LOOKING-GLASS-PLATES.

The work-house furnaces and utensils, you will find under the article *furnaces*, or in the following pages.

The melting-pots, in which the fore-mentioned materials or mixture is fus'd, are in height about 35 inches, and in diameter 38. See the plate.

These materials being vitrified or melted into glass by the heat of the fire, and sufficiently refin'd, the operation is perform'd in the following manner;

The master-workman dips his blowing iron into it, once or often, 'till he has gotten matter upon it sufficient for the size of the plate he is to make.

Then he steps up on a kind of block or stool, about 5 foot high, that he may have the more liberty or room to ballance it, as it lengthens in the blowing.

If the matter on the iron be too heavy for the workman to sustain on his blowing iron, he is assisted by 2 or more attendants, who hold pieces of wood under the glass, to prevent it from falling off the iron, by reason of its own weight.

The glass has thus several repeated heatings and blowings given it, 'till it be at length brought to the compass proper for its thickness, and the quantity of metal taken out; after which it is cut off with forceps, at the end opposite to the iron, in order to *point* it with the *pointil*.

The *pointil* is a long firm piece of *iron*, having a piece going a-cross one of its ends, in the form of a T; in order to point the glass, the head of the T is plunged into the melting pot, and with the liquid glass that comes out sticking to it, they fasten it to the end of the glass before cut off.

Having fastened it sufficiently, they separate the other end of the glass from the blowing iron, and instead of that make use of



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of the *pointil* to carry it to the furnaces, fitted for that purpose, where they continue to enlarge it, by several repeated heatings, 'till it is of an equal thickness in every part.

Having done this, they cut it open with the forceps, not only on the side by which it stuck to the blowing iron, but also the whole length of the cylinder: and when they give it a sufficient heating, it is in a condition to be entirely opened, extended, and flattened.

The manner of doing which is the same as for table glass. See *the article GLASS*.

The glass having been sufficiently flatted, is set into the annealing furnace for 10 or 15 days, according to its size and thickness.

*Looking-Glasses* thus blown, ought never to be more than 45, or at most 50 inches in length, and proportionable in breadth. Those which exceed these dimensions, as has been frequently experienced in those of the *Venetian* make, cannot have a thickness sufficient to bear the grinding, and besides are subject to warp, which causes them to be false, hindering them from regularly reflecting the objects.

*The method of casting or running large* LOOKING-GLASS PLATES.

When the matter has been sufficiently vitrified (*see the article FURNACES*) refin'd and settled, which is commonly in about 24 hours; they fill the cisterns, which are in the same furnace, and which is left there about 6 hours more, 'till such time as it appears all white, by means of the excessive heat.

To get the cisterns with the metal out of the furnace, they use a large iron chain, which opens and shuts with hooks and eyes; from the middle of which, on each side, arise 2 massive iron pins, by which, with the help of pulleys, the cisterns are rais'd on a kind of carriage, of a proper height, and are thus brought to the table, where the glass is to be run.

Then slipping off the bottom of the cistern, a torrent of fiery matter rushes forth, and presently covers the table prepar'd for that purpose.

This table, on which the glass is to be run, is made of pot-metal, in length about 9 foot, and proportionable in breadth. It is supported on a wooden frame with truckles for the convenience of removing from one *Carquasse*, or annealing furnace, to another, in proportion as they are fill'd.

For forming the thickness of a glass, there are 2 iron rulers or rims, placed around the edge of the table, and on these rest the 2 ends of a sort of roller, which is us'd to drive the liquid matter before it to the end of the table or mould.

These



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These iron rulers are moveable, so that they may be set closer or further apart at pleasure, and so determine the breadth of the glasses, and also keep in the liquid glass from running off at the edges. The glass being taken out of the annealing furnace, needs only to be *ground, polish'd, and foliated, (for which see GRINDING, POLISHING, and FOLIATING.)*

As soon as the liquid matter is come to the end of the table, and the glass is come to a consistence, which will be in the space of a minute; they shove it off into the annealing furnace, where it slides easy enough, by reason of the sand strew'd thereon.

That which is most surprizing throughout the whole operation, is the quickness and address, wherewith such massive cisterns, full of such flaming matter, are taken out of the furnace, convey'd to the table, pour'd on it, and the glass spread, &c. The whole is scarce conceivable to those, who have not been eye-witnesses of that surprizing manufacture.

As fast as the cisterns are emptied, they are carried back to the furnace, and fresh ones are taken out, and the liquid glass cast on the table into other plates as before, as long as there are any full cisterns; laying as many plates in each *carquasse* as it will hold, and stopping them up as soon as they are full; that so they may anneal and cool again, which will require at least 10 days time.

After they have dispatch'd the first running, they prepare another, by filling the cisterns a-new with matter out of the pots: and so a second, third, and fourth time, 'till the meltings pots are quite empty.

The cisterns at each running ought to remain at least 6 hours in the furnace, to whiten; and when the first annealing furnace is full, the casting table is to be carried to another.

When the pots are emptied, they take them out, as well as the cisterns, to scrape off what glass remains, which otherwise would grow green by continuing in the fire, and spoil the colour of the glasses. By this method we are not only enabled to make glasses of more than double the dimensions of any made the *Venetian* way of blowing; but also can cast all kinds of borders, mouldings, &c.

This art is said to be of *French* invention, and not yet of 60 years standing, being owing to the *Sieur Abraham Thevart*, who first propos'd it to the court of *France* in the year 1688; but has been considerably improv'd by our workmen in *England*.

*The FURNACES for casting or running large* LOOKING-GLASS PLATES.

The furnaces for melting the materials for these large plates, are of an exceeding large size; and the annealing furnaces for  
annealing

annealing the glasses when form'd, are much larger than the other.

There are at least 24 annealing furnaces, each from 20 to 25 foot long, round about the melting furnace they are called *carquasses*; and each *carquass* has 2 *tiffarts* or apertures, to put in wood, and 2 chimneys. And besides the annealing furnaces, there are others for making of *frit*, and calcining old pieces of glass.

All these furnaces are covered over with a large shed, under which there are also forges and work-houses for carpenters, smiths, &c. who are continually employed in repairing and keeping up the machines, furnaces, &c. There are also lodges and apartments for these and the other workmen employed about the glass, and in keeping up a perpetual fire in the furnace.

The inside of the furnaces are made of a sort of earth, proper for sustaining the action of the fire; and the melting pots, cisterns, &c. are made of the same earth.

The furnaces seldom last above 3 years, after which they are to be rebuilt from bottom to top; and to keep them in good repair for that time, the inside must be refitted every 6 months: the melting pots are as big as hogsheds, and contain above 2000 pounds of metal. The cisterns are much smaller, these serve for conveying the liquid glass, which is drawn out of the pots to the casting tables.

It is computed that a furnace, before it is brought into a state fit to run glass, costs above 3500 pounds: and that it will require 6 months to build one a-new; and 3 months to refit one. And that when a pot of matter bursts in the furnace, the loss of matter and time amounts to above 250 pounds.

When a furnace is in a condition to receive the pots and cisterns, it is heated red-hot: which being done, they fill the pots with the materials, which they do at 3 times, to facilitate the fusion.

The manner of heating the large furnaces is singular enough, the person who is employed for that purpose, being stript quite naked to his shirt, runs round the furnace, without making the least stop, with a speed scarce inferior to the lightest courier: as he goes along, he takes up 2 billets or pieces of wood, cut for that purpose, which he throws into the first *tiffart*, and continuing his course, does the same for the second; this he continues to do, without interruption, for 6 hours successively; after which another comes and relieves him.

It is surprizing, that 2 such small pieces of wood, and which are consum'd in an instant, should keep the furnace to the proper degree of heat; which is such, that a large bar of iron, laid

at

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at one of the mouths of the furnace, becomes red-hot in less than half a minute.

LOQUACITY is represented [in *Painting, &c.*] by a young woman gaping, in a habit of changeable taffety, with crickets and tongues; a swallow on the crown of her head, going to chirp, and a magpye and a duck at her feet.

The magpye denotes prating, that offends the ears; the tongues also too much talkativeness; the swallow, on her head, that prating disturbs the head of a quiet studious person; the duck at her feet denotes much talkativeness.

JOHN LOTEN, was a *Hollander*, and a landskip-painter. He lived and painted many years here in a manner very *sylvan*, like the *glades* and *ridings* of our parks in *England*.

He delighted particularly in open trees. His landskips are generally very large. He did many storms at land, accompanied with showers of rain, tearing up trees, dashings of water, and water-falls, cattle running to shelter; which pieces were admirably good.

He painted also many views of the *Alps* in *Switzerland*, where he lived many years.

His works abound among us. He died in *London* about 53 years ago.

LOVE. When any thing is represented as good to us, that makes us to conceive a Love for it; and when it is represented as ill or hurtful to us, that excites our hatred.

Love then is an emotion of the soul, caused by motions which incite it voluntarily to join itself to such objects as appear agreeable to it.

The motions of this passion, when it is simple, are very soft and simple; for the forehead will be smooth, the eye-brows will be a little elevated over the place where the eye-balls shall be turned.

The head inclined towards the object of the passion, the eyes may be moderately open, the white very lively and shining, and the eye-ball being gently turned towards the object, will appear a little sparkling and elevated.

The nose receives no alteration, nor any of the parts of the face; which being only filled with spirit, that warm and enliven it, render the complexion more fresh and lively, and particularly the cheeks and lips; the mouth must be a little open, the corners a little turned up; the lips will appear moist, and this moistness may be caused by vapours arising from the heart. See the Plate.

But Love, like *hope* and *joy*, is a passion that produces no great motions in the body. See the Figure in the Plate.

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Love, when it is simple, that is to say, not accompanied with any strong joy, desire, or grief, hath the pulse regular, and much greater and stronger than ordinary.

One feels a gentle warmth in the breast, and the digestion of the aliments is made sweetly in the stomach: so that this passion is profitable for health.

LOVE RECONCILED, is represented [in *Painting*, &c.] by a maid wearing a curious sapphire about her neck; holding in one hand a cup, and two little *Cupids* in the other.


The sapphire is of a celestial colour, has a virtue to reconcile, and precious stones commonly do so; the two *Cupids*, that the falling out of lovers is the renewing of love; they striving which should out-do each other, so that love becomes redoubled.


LOYALTY, is represented [in *Painting*, &c.] by a woman in a thin garment; in one hand holding a lighted lanthorn, on which she gazes; in the other a mask, with many patches; standing as if she would fling it against a wall.

The thin raiment shews that the words of a loyal person should be accompanied with sincerity: the lanthorn, that a man should be of the same quality within and without, as the lanthorn sends out the same light as is within; the mask, her despising all feigning, double meaning and equivocation.

*Lucas P R.* signifies *Luke Renni* the *Roman*, *Raphael's* scholar.

LUCAS VAN LEYDEN, born in 1494, scholar of his father, and *Corn. Englebert*, lived in *Holland*, and the *Low-Countries*, excelled in history and engraving, died in the year 1533, aged 40 years.

 This Mark is seen in some plates of LUCAS VAN LEYDEN, and the former part of this mark is under a *St. Veronica*, holding the holy shroud.

 MICHAEL of LUCCA, used this mark under a *St. Sebastian*, engraven after the manner of *Michelagnolo*, 1550, and we find the same mark in a *Madonna* of *Raphael*, and after it *ERRY Exc.*

LUCK is represented [in *Painting*, &c.] by a female in a changeable habit, a crown of gold on her head, and a full purse in one hand, and a cord in the other.

The crown and halter signify, that by Luck, happiness attends some, and misfortunes others: a poor man going to hang himself, finds a treasure, and leaves the rope in the place; he that left the treasure, finding the rope, hanged himself.

LUST is represented [in *Painting*, &c.] by a pretty handsome lady, with coarse black hair, plaited about her temples, sparkling,

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sparkling, wanton eyes, her nose turning upward, leaning upon her elbow; a scorpion in her hand, an he-goat by her side, and a vine with grapes.

The scorpion is an emblem of Lust, as is the he-goat; her posture denotes idleness, which foment's Lust; the vine is a token of Lust; for *sine Cerere & Baccho friget Venus*.

*To give STUFFS a beautiful LUSTRE.* For every 8 pound of Stuff allow a quarter of a pound of *linseed*; boil it half an hour, and then strain it through a cloth, and let it stand till it is turned almost to a jelly; then put an ounce and half of gum to dissolve 24 hours; then mix the liquors, and put the cloth into this glutinous mixture; take it out, dry it in the shade, and press; and if you find that once doing this is not sufficient, repeat the operation, and it will give the stuffs a very beautiful lustre.

**H**ANS LUTENSACH, used this mark. He engraved in a book for the nuptials of the emperor *Ferdinand*, tilts, tournaments, and rejoicings in *Callot's* manner.

LV. V. signifies *Lucas Van uster*, in some of *Titian's* land-skips.

LUXURY, is represented [in *Painting*, &c.] by a young damsel with hair finely curled, in a manner naked; sits upon a *Crocodile*, and makes much of a *Partridge*.

Naked, because Luxury squanders away the goods of fortune, and destroys those of the soul; the *Crocodile* for her fecundity denotes luxury.

## M.

**M**ADDER, a root of a plant, much used by dyers, to make the most solid and rich red-colour.

It is common enough; but generally comes from *Holland*, and if it is good it is red; 'tis finer than *Brazil*, and before you use it, it must be finely powdered, to give the better colour.

*To extract a tincture of MADDER for lake.*

This is done by the same method as is done for extracting a lake from *Brazil*, and will produce a fine colour, which make into troches, drying them, and it will be a perfect lake, and very fine for use. See BRAZILE and LAKE.

M A F. See RAIMONDI.

THOMAS MANBY, was a good *English* landskip painter, who had been several times in *Italy*, and consequently painted much after the *Italian* manner.

He was famous for bringing over a good collection of pictures, which were sold at the banquetting-house, about the latter

## M A G

latter end of king *Charles II's* Reign. He died in *London* about the year 1692.

MANGANESE } called by that name by reason of its re-  
 MAGNESE } semblance in the colour and weight to  
 the load-stone; it will not only give a blue colour, but also a  
 green, according to *Virgilius*, whereupon thus the commentator.  
 The green says he is watry, and is in all sorts of glass, so that  
*manganese* may not improperly be said to be the soap of glass.  
 Moreover it will tinge glass *red, black, and purple*; and one may  
 say, it is the most universal ingredient in all sorts of colours, as  
 this work will shew.

This kind of load-stone is at present called *manganese* or *magne-  
 nese*, according to *Casalpina*s and *Albertus*; it is made use of in  
 glass, because it is thought it attracts the liquor in glass into it-  
 self, as the load-stone does iron; and without doubt it is this  
 sort of load-stone, that *Pliny* and *Agricola* treat of, who assert  
 that it attracts the liquor of the glass into itself, that it purifies  
 it, and that of *green* or *yellow* it makes it *white*, and that after-  
 wards the fire consumes it.

*Lucretius* would persuade us, that the name of *magnese* was  
 given to the load-stone, from *Magnesia* a certain country in  
*Lydia*, near *Macedonia*, where it is found; so it is no wonder  
 that species of it we use in glass, retains the name of *magnese*,  
 and so *manganese*, since the country called by that name pro-  
 duces it.

*Pliny* mentions several sorts of load-stones, and gives the dif-  
 ferences of them, and tell us the places where they are gotten;  
 but without going farther, that which we call *magnese*, and  
 which serves to tinge glass, comes in great abundance from *Ger-  
 many* and *Italy*; but that of *Piedmont* is the best known; inso-  
 much that the *Venetians* hold it in such esteem, that they make  
 use of no other: For that found among the mountains of *Vi-  
 terba*, and in the state of *Genoa*, contains much iron, and will  
 give a *black* colour; on the contrary, that of *Piedmont* gives a  
 very fine colour, takes away all greenness, and makes it very  
 white, the due dose being observ'd.

*The way of preparing Manganese for whitening and tinging  
 GLASS.*

The preparation of *magnese* is much like that of *zaffer*; the  
 piece must be put into an iron ladle, and set into a reverbe-  
 ratory fire, and when it begins to whiten, sprinkle it with good  
 vinegar, afterwards beat it, and wash it while hot, as you do  
*zaffer*; and after that dry it, and reduce it into powder, and  
 sift it, and keep it in a vessel covered for use.

As for chusing *magnese*, the best is easy to break, very shi-  
 ning; the great and less pieces of it as full of rocky matter as  
 can be.

MA-

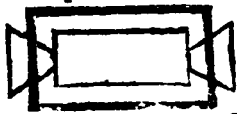


## M A R

**MANNEQUIN** [in *Painting*] is us'd to signify a little statue or model, ordinarily made of wax, and sometimes of wood; the junctures of which are so contriv'd, as that it may be put into any attitude one pleases, and its draperies and their folds be dispos'd, as one would have them.

**MANNER** [in *Painting*] is a habitude, that a man acquires in the 3 principal parts of painting in the management of colours, lights, and shadows, which is either good or bad, according as the painter has practis'd more or less after the truth, with judgment and study. But the best painter is he, who has no manner at all, the good or bad choice he makes, is call'd a good or bad *gout*.

**ANDREA MANTEGNA**, in his time the art of engraving was found out by *Maso Finiquerra*, a Goldsmith of *Florence*, and first practis'd by *Andrea*; he was born in the year 1431, was scholar to *Jacopo Squarcione*, liv'd at *Mantua* and *Rome*, excell'd in history and portraits, died in the year 1517, aged 86 years.

**For**  **ANDREW MANTEGNA** of *Mantua*, or *Padua*, painter and engraver, used these marks; the second mark is found in the 10 plates of the triumph of *Julius Cæsar*, engraven by himself, and afterwards cut in wood in 1599, by *Andrew Andreani* of *Mantua*.

**CARLO MARATTI** born in 1625, scholar to *Andrea Sacchi*, liv'd at *Rome*, excell'd in history and portraits, aged 88 years.

*To counterfeit* **RED MARBLE or PORPHYRY.**

Take *English brown*, if it appear too reddish, put to it some *umber* or *foot*, then take a very smooth board, a well polish'd marble, or a large piece of glass a little oil'd: Then grind the *English brown*, *roses*, or *lake*, with *gum tragacanth*; then with a large brush, stir or sprinkle the glass according to the marks and veins of the stone. When it is enough spotted, let it dry; then temper your *English brown* and *umber* with *gum tragacanth* water into a paste; which being laid on the spotted glass, or marble, let it dry, and polish it.

*To* **MARBLE books or paper.**

Dissolve 4 ounces of *gum arabick*, in 2 quarts of fair water; then provide several colours mix'd with water in pots or shells, and with pencils peculiar to every colour, sprinkle them by way of intermixture upon the gum-water, which must be put into a trough, or some broad vessel; then with a stick curl them, or draw them out in streaks, to as much variety as may be done.

Having done this, hold your book or books close together, and only dip the edges in on the top of the water, and colours, very lightly; which done, take them off, and the plain impression of the colours in mixture, will be upon the leaves; doing as well the ends, as the front of the book in the like manner.



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And after the same manner you may make marbled paper, by dipping it on the flat, as also linnen cloth, &c.

MARBLING of books is perform'd by book-binders, by sprinkling over the covers of books with black, by means of a black pencil, struck gently against the finger, or on a stick held for that purpose.

*Marbling* is not us'd, except to such books as are bound in calves-leather; and after the marbling is finish'd, the covers are glair'd over with the whites of eggs well-beaten, and afterwards glaz'd over with a polishing iron.

Books are also marbled on the edges; but in this marbling there is no black us'd, but instead of it, red, blue, yellow, &c.

MARCASITE is a metallic mineral, being, as it were the seed or first matter of metals.

On this principle there should be as many *marcasites* as *metals*; which is true in effect, the name being apply'd to every mineral body, which has the principles of metals in its composition.

There are but 3 kinds of *marcasites* sold in the shops, *viz.* *marcasite* of gold, of silver, and of copper; tho' some account the *loadstone* as the *marcasite* of iron; *tin* of glass, the *marcasite* of tin; and *zink* or *spelter*, that of lead.

*Marcasite* of gold is in little balls about the bigness of nuts, almost round, ponderous, of a brown colour on the outside.

*Marcasite* of silver is like that of gold, except that it is not so much coloured; the colour on the inside is very different, the one being of the colour of gold, and the other of the colour of silver, both shining and brilliant.

The *marcasite* of copper is about the largeness of a small apple, round or oblong, brown without, yellow and crystalline within, brilliant and shining.

*Marcasites* are found in mines of metal; they contain a great deal of vitriolic salt, especially that of copper.

MARCH is represented [in *Painting*, &c.] of a tawney complexion, and a fierce look: wearing upon his head a helmet, and leaning upon a spade; holding in his right hand *aries*, and in his left almond-blossoms and scions; and upon his arm a basket of garden seeds.

**IBM** JOHN MARIA *da Brescia*, a *Carmelite* friar, us'd this mark. He, in the year 1502, engrav'd a virgin sitting in the clouds, and underneath 3 saints of the order of the *Carmelites*. He had a brother call'd *John Antonio da Brescia*, who mark'd his plates with the letters JO. AN BX. 1538.

The MARIGOLD in *painting*; first lay on *masticote*, upon that *gambooge*, and shade with *gambooge* mingled with some *vermilion*. To finish, add *gall-stone* and a little *carmine*.

Let the green be *verditer*, shaded with *iris*.

*The*

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*The FRENCH MARIGOLD to paint or colour.*

First lay on *masticote*, and let the second lay be *gambooge*; then *gall-stone*, mix'd with *gambooge*, and finish with the last colour, a little *bistre* being added to it, and a very little *carmine*, for the deepest shades.

*The AFRICAN MARIGOLD to paint, &c.*

First lay on *gambooge*, and shade with the same, mixing with it a good deal of *carmine*, and a little *gall-stone*; but make an edging of *gambooge* about the leaves, very bright in the lights, and darker in the shades; shade the seed with *bistre*.

Let the *green* both of the *French* and *African* be *verditer*, shaded with *iris*.

MARS, his pictures, says *Macrobius*, were adorn'd and beautified with sun-beams, in as lively a manner as could be devis'd, with a fierce aspect, terrible and wrathful, his eyes hollow and quick in their motion, his face all hairy, with long curled locks on his head, hanging down to his shoulders, of a coal-black colour, standing and holding a spear in one hand, and a whip in the other.

2. *Statius* says, he was represented wearing on his head a bright shining helmet, so fiery, that it seem'd as tho' it sent forth flashes of lightning; arm'd with a golden breast-plate, on which was engraven fierce and ugly monsters; and his shield bestain'd all over with blood, and enchas'd with deformed beasts, drawn in a chariot by 2 horses *fury* and *violence*, driven by 2 surly charioteers, *wrath* and *destruction*, and he himself holding a spear in one hand, and a whip in the other.

3. He is also sometimes represented on horseback, and sometimes in a chariot drawn with horses call'd *fear* and *horror*, and some say with the figures of men call'd *fear* and *violence*.

*Isidorus* relates, that the picture of *Mars* was painted with a naked breast.

By which is intimated, that men ought not to be timorous in war, but valiantly and boldly expose themselves to hazards and dangers.

*Statius* relates, that the house of *Mars* was built in an obscure corner of *Thracia*, made of rusty black iron; that the porters, which kept the gates, were *horror* and *madness*; that within the house dwelt *fury*, *wrath*, *impiety*, *fear*, *treason*, and *violence*; and the governess of the house was *discord*, who sat on a royal throne, holding in one hand a bright sword, and in the other a basin full of human blood.

*Ariosto* describes the court of *Mars*, as a place of horror and confusion, saying, that in every part and corner of it were heard *strange echoes*, *fearful shrieks*, *threatenings*, and *dismal cries*; in the middle of this palace was the image of *virtue*, looking sad

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and penfive, full of *sorrow*, *discontent*, and *melancholy*, leaning her head on her arm: hard by her in a chair was seated *fury* in triumph; and not far from her sat *death* with a bloody stern countenance, offering men's skulls in human blood upon an altar, consecrated with coals of fire, fetch'd from many cities and towns, burnt and ruin'd by the tyranny of war,

*The poetical fable of the MARTAGON, or MOUNTAIN LILLY.*

Once upon a time, when the Gods were merry-making, *Jupiter*, as his manner was, would needs embark in some new amour; and *Sylvia* a young goddess, who was but newly arriv'd at the court of heaven, was the fair with whom he was smitten.

The deity depending upon his almighty-ship, thought he should make an easy conquest, but was mistaken in his aim; for when he address'd the goddess, she receiv'd his courtship with coldness and neglect, as became a deity, jealous of her honour and reputation.

But *Jupiter*, who was not us'd to be repuls'd with the first refusal, pursued his amours; but she persisting to show an aversion to his solicitations, he plainly saw her heart was not so easy to be won as he imagined.

But he at last resolving to obtain by force what he found so difficult to gain by caresses; *Sylvia* found it necessary to summon all her reason to her aid, and by that means got the better of *Jupiter*, and preserv'd her chastity.

But this action of *Jupiter* seem'd so strange to her, and struck her with so much horror, that her nose suddenly gush'd out a bleeding; the drops of which blood falling on the ground, from thence sprung up the flower call'd the *Martagon*, or *Mountain-Lilly*, of a red colour, and whose flower-leaves all turn backwards, in token of *Sylvia's* aversion to *Jupiter's* libidinous pursuit.

### The MORAL.

*A virgin ought to hold nothing so dear as her chastity and honour, which will always be much regarded; especially if having been once in danger of losing it, she has bravely resisted all temptations, that might have seduc'd her to the violation of her chastity.*

**MASSES** [in *Painting*] are large parts of a picture, containing the great lights and shadows: And thus when it is almost dark, we see only the *masses* of a picture, *i. e.* the places of the lights and shadows.

**MATRASS** is a glass vessel us'd in chymical operations, call'd also a *bolt-head*. It is made in the form of a bottle, with a very long narrow neck. The *Matrafs* is luted with earth, when it

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it is to be placed on a very hot fire; when it is required, it should be stopp'd very close; it is sealed hermetically.

MATRICE [*with dyers*] is a term apply'd to the 5 simple colours, whence all the rest are deriv'd or compos'd.

These are the black, white, blue, red, and fallow or root-colour.

MATRICES [*with Letter-founders*] are those small pieces of copper or brass, at one end of which are engraven *dent-wise*, or *en creux*, the several characters (or letters) us'd in the composing for the printing of books.

Each letter or character, and each virgula or point in a composition of sentences, has its several *matrice*, and of consequence its several puncheon to strike it.

These *matrices* are cut by the engravers on metal.

When any types are to be cast, the *matrice* is fastened to the end of a mould, so dispos'd, that when the metal is poured on it, it may fall into the *creux*, or cavity of the *matrice*, and take the figure and impresson of it.

MATRICES [*with Coiners*] are pieces of steel, in form of dyes; on which the several figures, arms, characters, legends, &c. wherewith the species are to be stamp'd, are engraven.

The engraving is perform'd with several puncheons, which being form'd *in relievo*, or prominent, when struck on the metal, make an indented impresson, which the *French* call *en creux*.

MATTURINO a scholar of *Rafaelle*, liv'd at *Rome*, excell'd in history-painting, died in the year 1527.

FRANC MAZZUOLI call'd PARMEGIANO, was the first who practis'd the art of etching, born in the year 1504, scholar to his 2 uncles, liv'd at *Rome* and *Parma*, excell'd in history and portraits, died in 1540, aged 36 years.

MAY is represented [*in Painting, &c.*] with a sweet and lovely aspect, clad in a garment of white and green, embroidered with daffodils, hawthorn, and blue-bottles; on his head a garland of white and red damask roses, holding in one hand a lute; and a nightingal sitting on the fore-finger of his other.

M. C. signifies *Martin de Clif*, or *Clivensis Augustanus*.

M. D. VOS is put for *Martin de Vos*, a celebrated inventor for engravers.

The MEASURES of a HUMAN BODY that are equal between themselves.

1. The space between the chin and the throat-pit, is equal to the diameter of the neck.

2. The circumference of the neck, is equal to the distance of the throat-pit to the navel.

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3. The diameter of the waist, is equal to the distance between the knob of the throat, and the top of the head, and that is equal to the length of the foot.

4. The space between the eye-lids and the nostrils, is equal to that between the chin and the throat-bone.

5. The space from the nose to the chin, is equal to that of the throat-bone to the throat-pit.

6. The distance from the hollow of the eye-brow to the centre of the eye, is equal to the prominency of the nostrils, and the space between the nostrils, and the end of the upper lip.

7. The distance between the top of the nail of the fore-finger, and the joint next the palm or thumb, is equal to the distance between the said joint and the wrist.

8. The greater joint of the fore-finger is the height of the forehead.

9. The space between that joint and top of the nail, is equal to the length of the nose; from the tip to the arch above the eyes, where the forehead and the nose is divided, to the 2 first joints of the middle finger, are equal to the space between the nose and the chin.

11. The first joint of the middle finger, whereon the nail grows, is the distance between the nose and the mouth.

12. The second joint answers to the first, which is equal to the chin.

13. The bigger joint of the thumb is equal to the length of the mouth.

14. The space between the top of the chin, and the dint under the lower lip, is equal to the lesser joint of the thumb.

15. The least joint of each finger is double the length of the nail.

16. The spaces between the middle of the eye-brows, and the outward corner of the eyes, is equal to the spaces between the said corners and the ears.

17. The height of the forehead, the length of the nose, and distance of the nose from the chin, are equal.

18. The breadth of the hand is equal to the breadth of the foot.

19. The length of the foot is equal to the measure round about the instep.

20. Twice the breadth of the hand is equal to the length of it.

21. The arches of the eye-brows are equal to the arch of the upper lip, at the division of the mouth.

22. The breadth of the nose is the length of the eye, and are either of them equal to half the length of the nose.

23. The navel is in the middle between the nose and the knee.

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24. The space from the top of the shoulder to the elbow, is equal to 2 faces, and from that to the wrist one and a half.

25. The breadth of the body, at the broadest part of the shoulders, is 2 faces and a half, which is also equal to the distance between the elbow and the middle finger.

26. The breadth of the body at the privities is equal to two faces.

27. The thighs, at the thickest part near the privities, are the distance of 2 faces broad.

28. The thickest part of the leg is equal to the space between the top of the forehead, and the end of the nose.

29. The breadth of the back at the arm-pits, is equal to 2 faces, and so are the hips at the buttocks.

30. The length of the middle finger is equal to the space between its last joint and the wrist.

*How to take off the IMPRESSION of MEDALS.*

Take *Ichthyocolla*, i. e. *ising-glass*, called also *fish-glue*, (which you may have at the druggists) break it to pieces, dissolve so much of it, as you think you shall have occasion for (perhaps an ounce or more) in so much water as will cover it; set it on the fire, and keep it stirring, 'till it is wholly dissolv'd. Then stroke some of this glue over the medals, whose impression you would take, laying them as flat or horizontally as you possibly can; and after you have thus covered them perfectly all over, let them lie 'till the glue is hardened; and afterwards raise the edge of the glue from each medal with the point of a pin or needle, and the whole impression of the medals in glue will fly off as hard as horn, with all the fine sharpness of the medal, as if it was struck.

This glue you may make of what colour you please, by mixing the colour in the water the glue is boiled in. These impressions must be dry'd immediately, but not either in an hot sun, nor in any damp place, but regularly.

If you use *ising-glass* without any colour mix'd with the water, you may (if you please) when you take the copies from the medals, breathe gently on the concave side of them, which in some measure will moisten the medal; and then lay it upon a piece of the thickest sort of leaf-gold, and it will stick to it; and by shining through the *ising-glass*, will appear like a gold medal; and if you would imitate a copper medal, mix *carmine* with the water you dissolve the *ising-glass* in.

Altho' *water* will do very well for dissolving the *ising-glass* in for this purpose, yet *brandy* or *spirits of wine*, will give the glue a much greater strength, so as not to be subject to grow soft by a damp air.

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### *How to take IMPRESSIONS of large MEDALS.*

First rub the medals gently over with a tuft of fine cotton, moistened or greas'd with *sallad oil*, then having some brimstone melted, enough to cover the medal half an inch thick, put a hoop of card paper round the edge of it, and pour the melted brimstone on it, but not too hot; as soon as it is fix'd and hardened, untie or take off the hoop of card paper, and the impression from the brimstone will come clean from the medal, which will have produc'd a sharp and correct mould, in which you may cast another with *plaister of Paris*.

But if you do this on silver medals, it will change their colour.

### *As for silver MEDALS;*

Bind the medals round with card or other stiff paper, having oil'd them; and mixing a little *plaister of Paris* with water, fill the hoop with it, then immediately fill the case in a sprinkling manner with the same plaister 'till it hardens; and when it is grown dry, take it off from the medal.

As for the moulds cast in brimstone, which are concave, you are again to cast such medals again in *plaister of Paris*, which will be convex, oiling the mould as before, and using the *plaister of Paris* as before directed; and by this method you may take off any medal or fine bass-relief, with a great deal of exactness, even so as to form medals from them in any sort of metal.

### *To take off IMPRESSIONS in PLAISTER of PARIS from COPPER-PLATES.*

Oil the plates a little, and bind them about, either with card-paper or other paste-board, and pour on some of the finest *plaister of Paris* and water, and finish the work with plaister, 'till it becomes dry, and hardens; and this will give you a fine impression, or draught, of the lines of the plate in the plaister, which you may use to draw from, if you have occasion.

### *How to take off any fine engravings from watch-cases, or the tops of snuff-boxes, &c.*

Hold them over the smoak of a candle, 'till they are quite black, then wipe off the *black* with the soft part of the palm of your hand, and lay on the engraving a piece of white paper, a little wetted with a sponge, and over that a thin piece of flannel, or a piece of brown paper held very hard down over the engraven part; which being rubb'd, the paper next the picture will receive a fine impression, as if it had pass'd through a rolling-press.

### *Another way of taking off MEDALS.*

Procure thin pieces of lead, and place the medal horizontally on the top of a firm post, or any steady place; then lay a piece  
of



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of harder metal, flat over the lead, and a piece of a round turn'd stick over that place, such as is us'd in the staff of a house-brush, sawn off about 5 or 6 inches in length, and holding that tight with the left hand on the lead and flat piece of metal, strike the top of the stick a smart blow with a large hammer, and it will give to the lead a perfect impression of the image of the medal; but this must be done by one single blow, to render the impression perfect: even this may be done on any impression made on sealing-wax.

### *Another way to take off a MEDAL.*

Lay a piece of thin sheet of block-tin, otherwise called *foil*, such as is laid on the backside of looking-glasses in silvering them, which may be bought at those shops, where *plaster of Paris* is sold, or at some pewterer's shops; rub this hard upon the metal, and it will give a very good likeness of whatever medal it is rubb'd upon.

Impressions may be also taken from medals with putty, such as is us'd by the glaziers; altho' medals or bas-reliefs are under-wrought.

### *Another way of taking off MEDALS.*

Take the shavings of paper, which you may have at the bookbinders, boil them well in common water 'till they are tender, then pound them well in a mortar, 'till they come to be a paste, then boil them again in spring-water with a little *gum Arabick*; let this mixture stand a while to settle, then pour off the water, straining it through a sieve or linnen-cloth, and that which remains will be excellent good, either to press into any mould, or upon any medal, and when the paste is dry it will come off very sharp.

Some medals that are under-wrought cannot be taken off this way; therefore in such cases, you should take common glue and melt it, fixing a hoop of paste-board, &c. round the edge of the medal; pour on the glue hot, the medal having been first oil'd with a tuft of oiled cotton.

When the glue is grown dry and hard, take off the hoop, and the glue will fly off from the edges, and it will then easily come off, being subject to bend and give way, which the other things before-mentioned will not do. The glue ought to be made strong, and be poured on one third part of an inch thick.

When an impression has been taken by this means, then you must hoop your mould of glue with other card-paper, or paste-board, as before directed: And oil it, so that no bubbles or blisters may be seen; that is to say, just make it greasy, then you may cast *plaster of Paris* in it, and you will have a good copy of the medal; when this is dry, the glue will fly off, or may be broken off, and there will be a good pattern to cast from.

Also

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Also a putty may be made of linseed-oil, and fine-ground starch, which being well worked together into a paste, will take a good impression from any medal. This will be much better than common putty.

When you have made these moulds, you may cast in them good medals of bees-wax; but they will come off much sharper if the mould be in *brimstone*, than if it be in *plaster of Paris*: but when you do this, your wax should be as well blanch'd or whitened, as one would use for wax-candles; but it will however be necessary to grease the mould before the wax is poured in.

But tho' white wax is here recommended, it will not be best for the copy of the medal to be white; for the darker colours shew the medal much better.

If you would have your copy of a *red* colour, mix *vermilion* with the wax while it is melting; and if *blue*, put in *stone-blue* well-beaten or ground, into the melted wax.

As soon as these wax medals are cold enough to take off, you should lay some leaf-gold upon them, pressing it down gently with a piece of cotton, without rubbing it backwards and forwards, and that will gild your medals.

When you have cast medals in *plaster of Paris*, to make them look like steel, or metal, rub them over with a tuft of cotton, lightly greas'd with oil, and then put on them some powder of black lead, and rub them well with a brush, such as is us'd for the teeth, 'till the whole is equally cover'd, and this will give them a fine gloss.

You may make these medals of *plaster of Paris* of the colour of box, by boiling them in *linseed-oil*, and it will harden them to that degree, as to bear the brush in cleaning them, if they have gathered any dust.

If you would have your medals of *plaster of Paris*, of a *yellow* or *golden colour*; then boil a little pearl-ashes in a pint of water, 'till it makes a strong *lixivium*; then put in about half a quarter of a pint of *French berries*, boil them 'till the liquor is of a very strong *yellow*, and use this liquor with your *plaster of Paris* instead of common water.

If you would have your medals of *plaster of Paris* of a *blue* colour, then boil some *Lacmus*, or *Litmus*, in river-water, 'till the water is as blue, as you would have it; use this water with your plaster, when you cast your medal, to have it of a fine colour.

If you would have your medals of *plaster of Paris* of a *red* colour, boil a little raspings of *Brazile* wood in pale stale beer; and when it is strain'd off, use it as common-water with the plaster.

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It is very likely, that if you would have these sorts of medals *green*, the fine transparent gum of *verdigrease* will mix with the *plaister of Paris*, and so make a fine green.

You may, as has been said, make your medals most easily of *Ichthyocolla*, or fish-glue; and for the gold coins use *leaf-gold*, and for the silver coins, *leaf-silver*, or with tin-foil; and for the copper, leaf-copper made in *Germany*; and as for leather coins, mix a little fuller's earth with the water or spirit, before the melting the *fish-glue* or *ising-glass* in it.

*To cast MEDALS very lively.*

To do this, calcine *speculum* or *spaud* in a crucible, then put it into a vessel of earth, and pour water on it; and when you have stirred it well, add as much more water, and being settled, take it out, and make it into balls; then calcine it a second time, and pound it into powder, and sprinkle some vinegar upon it, and by that means make it into a paste: then calcine it again a third time, and when it is cold, reduce it into powder, and searce it very fine, adding to it an ounce of *sal armeniac* dissolved in water to 12 ounces of *speculum*; keep it then in a cellar, and with it make your moulds, or otherwise frame your medals of it, moistening it also with *crocus martis*, or *saffron of iron*, in which you may cast the finest hair imaginable.

**M** PETER MERCAUD used this mark.  
**MERCURY**, is a fluid mineral matter, which perfectly resembles silver in fusion. It is popularly call'd *quick-silver*.

Authors are divided as to what class of fossils to range *mercury* under: some hold it to be a *metal*; others, a *semi-metal*; and others, an *imperfect metal*.

*Boerhaave* observes, that it is very improperly call'd a metal; inasmuch as it has not all the Characters of such a Body; nor scarce any thing in common with the other metals, except weight and similarity of parts; as for example, it is neither dissolvable by fire, malleable, nor fix'd.

In effect it seems to constitute a peculiar class of fossils: and is rather the mother or basis of all metals, than a metal itself.

The characters or properties of **MERCURY** are,

1. That of all bodies it is the heaviest next to gold, and still by how much the purer it is, by so much it is the heavier: the ordinary proportion of *mercury* to gold, is that of 14 to 19; and if any mercury be found to be more than according to this *ratio*, it may safely be concluded that it has gold in it.

2. The second character is, that it is the most fluid of all bodies; that is, its parts separate and recede from each other by the smallest force; and of consequence it is that of all bodies, whose parts cohere least, and are the least tenacious, and therefore of all others the least ductile and malleable.

The

## M E R

The parts of water do not divide so readily as those of quicksilver; and the parts of oil much less.

3. The third property of *mercury* is, that of all bodies it is divisible into the minutest or smallest parts; thus being expos'd to the fire, it resolves into a fume, scarce perceivable to the eye.

4. The fourth character is, that it is extremely volatile, being convertible into fume, even by a sand-heat.

The gilders are but too well acquainted with the vaporous quality of *mercury*, which frequently render them epileptic or paralytic; and sometimes salivate them.

5. The fifth property is, that it easily enters, and intimately adheres to *gold*; but not so easily to other metals, with difficulty to *copper*, and not at all to *iron*.

6. The sixth character is, that of all *fluids* it is the coldest and hottest, supposing the circumstances the same: this property depends on the great weight of *mercury*; for the heat and cold of all bodies is, *ceteris paribus*, as their weights.

Now *mercury* being 4 times heavier than water, if both of them be exposed in a winter's night to the same cold, the *mercury* must be so much colder than water, as it is heavier.

So also, if they be both apply'd to the same degree of heat, while the *water* becomes *warm*, the *mercury* will be *hot* enough to burn the hands.

7. The seventh property of *mercury* is, that it is dissoluble by almost all acids, and unites itself with them, at least all fossil acids.

Only vinegar does not dissolve it; and hence we are furnish'd with a method of detecting the frauds of the druggists, &c. who make a practice of sophisticating quicksilver with lead.

Pound a little mercury with vinegar in a mortar, and if the vinegar grow sweetish, it is a proof there is a mixture of *lead* in it.

If *copper* has been mix'd with it, the *mercury* will turn greenish or bluish: and if there be no adulteration, the *mercury* and vinegar will both remain as before.

8. The eighth property of *mercury* is, that it is the most simple of all bodies, next after gold; and accordingly it is found the same in all its parts, as far as observation goes.

9. The ninth property of *mercury* is, that it is not in any measure *sharp*, for it shews no Acrimony in the taste, nor does it corrode any body: and if a carcass were to be buried in quicksilver, it would there remain without being any way hurt.

**MERCURY** *is found in mines.*

The chief mines of *mercury* are those of *Hungary*, *Spain*, *Frinli*, and *Peru*.

The greatest part of the quicksilver comes to us from *Frinli*, where there are abundance of mines, belonging to the emperor.

It is found under three several forms.

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1. In ruddy glebes or clods, call'd *cinnabar*.
2. In hard stony glebes, or a mineral substance of a saffron, and sometimes a blackish colour.
3. It is also found pure: for upon opening holes in the beds of stones, &c. there sometimes gushes out a vein or stream of pure *mercury*, call'd *virgin mercury*.

*The method of separating the mercury from the ore or earth.*

The mineral glebe is first ground to powder, and then a great quantity of water put upon it, and the whole is kept stirring and working briskly about, till all the water becomes exceeding thick and turbid.

This water they let stand till it settles, and then pour it off, and supply its place with fresh, which they stir and work as before.

This is repeated so often, till the water at length comes away perfectly clear; then all that remains at the bottom of the vessel, is *mercury*, and other metalline matter.

To this *mercury*, &c. is added *scoria* of iron, putting the whole in large iron retorts; and so distilling it; by which means, all the heterogeneous, metallick, and stony part is separated from it, and the *mercury* left pure.

As to the *mercury* in *cinnabar*, they don't find it worth while to distill it, to get it out; the *cinnabar* selling for a better price than the *mercury* itself.

Those miserable wretches, who are either condemned or hired to work in the quick-silver mines, all die in a little time: they are first affected with tremblings, and proceed to a salivation; then their teeth drop out, and they are seized with pains all over, especially in their bones, which the *mercury* penetrates; and thus they die.

As to the *Spanish mercury*, the earthy matter, with which it is mix'd, is *red*, and speckled with *black* and *white*, and so hard, that it is not to be broken up without gun-powder.

The *Hungarian mercury* is frequently a hard stone; but ordinarily a reddish earth.

In *Friuli* there is a soft earth, where the virgin quicksilver is found, and a hard stone, which yields the common *mercury*.

The mine of *Idica*, which is one of those belonging to *Friuli*, is so rich, that it yields always half quicksilver, and sometimes 2 thirds.

The mine of *Juan Cabelaca*, or *Guan Cabeleca* in *Peru*, is still more considerable; the earth of this mine is of a whitish red, like half burnt bricks; first they break it, and then expose it to the fire, by spreading it on a lay of common earth, wherewith the grate of an earthen furnace is covered; under this grate they kindle a fire with a sort of herb, which the *Spaniards* call *Icho*,  
which

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which is so absolutely necessary for these works, that the cutting of it is forbid for the space of 60 miles round.

In proportion as the mineral heats, the *mercury* rises volatiliz'd into smoke; which smoke, finding no vent through the capital of the furnace, which is exactly luted, escapes through a hole made for the purpose, communicating with several earthen cucurbits, fitted within one another.

The water at the bottom of each cucurbit condensing it to smoke, the quicksilver precipitates, and is taken up when the operation is over.

In this process there are three things remarkable.

1. That the farther the cucurbits are from the furnace, the more they are fill'd with quicksilver.

2. That at last they all grow so hot, that they would break, if they were not sprinkled from time to time with water.

3. That it has been observed, that the workmen employed in the preparation of *mercury*, never hold is long, but become paralytic, and die hectic.

To prevent which, as much as may be, they use this precaution, to hold a piece of gold in their mouths, to imbibe the *Effluvia*, and intercept the passage of them into the body.

Dr. *Pope* tells us of one he saw at the mines of *Friuli*, who, in 6 months time, was so impregnated with the metal, that if he put a piece of brass in his mouth, or even rubbing it in his fingers, it would turn as white as silver.

The method of purifying *mercury*, is by washing it several times in vinegar, in which common salt has been dissolv'd; or by passing and repassing it frequently over a *chamois* skin.

*Am. Paræus* tells us, that the best way is to make a dog swallow a pound at a time, and afterwards to separate it from the excrements, and wash it in vinegar.

The uses of MERCURY are very considerable in *gilding*, making *looking-glasses*, in *refining gold*, &c.

MERCURY, is describ'd by the antients, as a beardless young man, having 2 small wings fix'd behind his shoulders and ears, his body almost all naked, excepting that a thin veil hangs down from his shoulders, which is wrapp'd round his body; he held a golden purse in his right hand, and in his left a *caduceus*, or snaky staff, *viz.* a slender wand, about which two snakes did annodate, *i. e.* twine in certain knots, their heads meeting together just at the top, as their tails do at the bottom.

This resemblance was call'd *concordia*, or *signum pacis*, on which account ambassadors, heralds, and great men in matters of state, always carried in their hand such a kind of staff, and were call'd *caduceatores*.

Some



## M I C

Some however represented *Mercury* in the likeness of a very aged man, with his head almost bald, excepting that some few hairs remained on the sides, short and curl'd; of a grim, severe, and sour aspect; of a tawney complexion, an antient hue; clad with a lion's skin, for an upper garment; holding in his right-hand a large pole-ax, and in his left-hand an iron bow; and a quiver of steel-headed arrows hanging at his back; to the end of his tongue were fastned many small chains of gold, at the ends of which were tied multitudes of all sorts of men, which he seemed to draw to him; looking continually backward, to behold the innumerable troops of people following him.

*By this description is signified the all-powerful and attractive virtue of eloquence; which by his age is understood to be found only in old, wise, and experienc'd men, as being more mature and perfect in them, than in those of younger years.*

*Apuleius* writes, that *Mercury* was a very youth, having very short hair on his head, of an amber colour, and curled; clad only with a very thin veil of purple silk.

He is also drawn with long, curled, yellow hair; in a coat of flame colour; and with a pure white mantle trimmed with gold and silver; with a white beaver or hat, with white feathers; golden shoes, and a silver rod in his hand.

*Martianus Capella* also describes him young; but of a strong and well-composed body; with certain young hairs of a yellowish colour, sprouting out of his chin.

Among some of the *Ægyptians*, he was depicted with a head like a dog, holding in his right-hand a *caduceus*, i. e. a snaky wand, and shaking a green bough of palm with his left-hand.

*By the dog's head was signified subtilty and craftiness, (no beast being accounted so subtil as a dog;) by the snaky wand, the power of wisdom and eloquence in producing peace, which is signified by the green palm-branch.*

*Pausanias* relates, that *Mercury* was represented in a certain province of *Corinth*, as a young man carrying a ram upon his shoulders: and that a statue was brought from *Arcadia* to *Rome*, and erected in the temple of *Jupiter Olympus*, which had on its head a helmet of engraven steel, and a coat over his shoulder, holding under his Arm the image of a ram.

MERCY, is represented [in *Painting*, &c.] as a lady sitting upon a lyon, holding in one hand a spear, and in the other an arrow, which she seems to throw away.

MICHAEL ANGELO MERIGI *da* CARAVAGGIO, born in the year 1669, scholar of Cavalier *Gioseppino*, liv'd at *Venice*, *Rome*, and *Malta*, excell'd in history and half figures: he died in the year 1609, aged 40 years.

MER-



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MERMAN, } Are sea-creatures, frequently talk'd of, as be-  
 MERMAID, } ing supposed half human, and half a fish, and  
 are represented by *Painters*, &c. in the form of a man or woman  
 from the navel upwards, and with the tail of a fish from thence  
 downwards.

It is true, naturalists have been in doubt as to the reality of  
*mermen* and *mermaids*, yet there seems to be sufficient testimony  
 to establish it beyond contradiction.

We are inform'd by *Larrey*, that in the year 1187, such a  
 monster was fish'd up in the county of *Suffolk*, and was kept by  
 the governour for 6 months.

This animal bore so great a resemblance to a man, that no-  
 thing seem'd wanting to it but speech.

That one day it took the opportunity of making its escape, and  
 plunging into the sea, was never more heard of. *Hist. d'Angle-  
 terre*, P. I. p. 403.

In the year 1430. after a great tempest, which broke down  
 the dykes in *Holland*, and made way for the sea into the meadows,  
 &c. some maids of the town of *Edam* in *West-Friesland* going in  
 a boat to milk the cows, perceiv'd a *mermaid* embarras'd in the  
 mud, with a very little water.

They took it into the boat, and brought it with them to *Edam*,  
 dress'd it in women's apparel, and taught it to spin. It fed like  
 one of them; but could never be brought to speak.

It was some time after brought to *Haerlem*, where it lived for  
 some years, tho' still shewing an inclination to the water.

*Parival* relates, that they had communicated to it some notions  
 of a deity; and that it made its reverences very devoutly, when-  
 ever it pass'd by a crucifix. *Delices de Hollande*.

In the year 1560, some fishermen are related to have brought  
 up by one draught of the net, 7 *mermen* and *maids*, near the island  
*Manar*, on the western coast of the island of *Ceylon*; of which se-  
 veral jesuits, and amongst the rest, *F. Hen. Henriques*, and *Dimas  
 Bosquez*, physician to the viceroy of *Goa*, were witnesses: the  
 physician, who examin'd them with a great deal of care, asserts that  
 all the parts, both external and internal, were found perfectly con-  
 formable to those of men. See the *Histor. de la Campagne de Jesus*,  
 P. II. T. iv. N°. 276. where the relation is given at large.

There is also another relation, that is well attested, of a *mer-  
 man*, near the great rock call'd *Diamond*, on the coast of *Martinico*.

The persons who saw it, gave in a precise description of it be-  
 fore a notary. They affirm that they saw it wipe its hand over  
 its face, and heard it blow its nose.

Another animal of the same species was taken in the *Baltick*,  
 in the year 1531, and sent as a present to *Sigismund* king of *Poland*;  
 with whom it liv'd 3 days, and was seen by all the court.

*Dannan*

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*Damian Gaes* relates, that another very young one was taken near *Rocca de Sintra*.

METALS are simple fossil bodies, which fuse and become fluid by fire, and coagulate by cold, and harden into a solid mass, capable of distending under the hammer.

A metal is said to be simple, as it may be affirm'd of every the minutest particle of a *metal*, *e. gr.* a grain of gold, that it is gold, or has all the properties of gold.

A *metal* is fusible by fire; that is, when expos'd to a great fire, it dissolves into parts, which are easily moveable among themselves, or are actually in motion.

A *metal* is fix'd, *i. e.* it bears the fire without flying off in vapours. Tho' *metals* are fix'd only to a certain degree; for by the large burning-glasses of *M. Tschernhausen* and *Villette*, all *metals* will readily evaporate.

Such are the proper characteristicks of metals, which are no ways applicable to any other bodies in nature; for a *diamond*, or other stone, tho' it be a simple body, yet is not fusible in the fire, nor capable of being extended under the hammer, and the *salt* being dissolvable by fire, is not malleable, but will break under the hammer.

There are indeed certain woods, which yield in some measure to the hammer; but then they fall to dust in the fire, and so of the rest.

There are but 6 *metals* found in all nature, *viz.* gold, silver, copper, tin, lead, and iron.

To these is usually added a seventh *metal*, *viz.* mercury or quicksilver, but improperly, as it has not all the characters of a *metal*, nor scarce any thing in common with the other *metals*, except weight and similarity of parts.

Thus for example it is neither dissolvable by fire, malleable, nor fix'd: and in reality it seems to constitute a peculiar class of fossils, and is rather the *mother* or *basis* of all *metals* than a *metal* itself.

The common radical character of *metals* is, that of all known bodies they are the heaviest.

By the experiments made by *Dr. Halley*, the weight of gold to that of glass is determin'd to be as 7 to 1; and the weight of tin, the lightest of all *metals*, to that of gold as 7 to 19; which considerably surpasses the weight of all *stones*, marbles, gems, and other the most solid bodies, as appears from the tables of specific gravities.

Nor is there any body in nature but a *metal*, that is one third of the weight of gold.

The *Royal Society* furnish us with various experiments of this kind.

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The weights of the several *metals* and other solids, they have examin'd hydrostatically, by weighing them in air and water; and the weight by the fluids, by weighing an equal portion of each.

By such experiments they find, that taking the same weights of *water* and *gold*, the bulk or magnitude of the water is to that of *gold*, as 19636 to 1000; consequently that the weight of *gold* is to *water* nearly as 19 to 1.

*The specific weight of the several metals by this means determin'd, stands thus.*

Gold	19635	Iron	7852
Quicksilver	14019	Tin	7321
Lead	11341	Stone	2000
Silver	105135	Water	1000
Copper	8843	Air	$\frac{8}{27}$

The Cubic Inch of	Ounces.	Drachms.	Grains.
Gold	12	2	52
Quicksilver	8	6	8
Lead	7	3	30
Silver	6	5	28
Copper	5	6	36
Iron	5	1	24
Tin	4	6	17

*As for the origin and formation of Metals, the opinions of philosophers, ancient and modern, are various.*

*Plato* supposes the causes of *metals* to be a humid vapour, inclos'd in the bowels of the earth, which being variously intermixt with parts of the earth, produce various *metals*.

*Plotin* supposes sulphur to be the father of *metals*, and an oleaginous viscous humour the mother.

*Lidyat* attempts to prove, that all *metals* are generated by a subterraneous fire.

*Du Hamel* shews, that *metals* don't take their rise, either from any vaporous exhalation, or from water, or from earth; but are generated of *mercury*, *sulphur*, and *salt*: that *metals* take their matter and weight from *mercury*, and their tincture and form from *sulphur*.

*M. Tournefort* is of opinion, that all *metals* have their origin from seeds like plants; and that they have vessels in which juices circulate.

*To take away the brittleness of any METAL.*

First calcine the *metal*, and put it under dung; and afterwards heat it red-hot at the fire, or melt it, and quench it of-

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ten in *Aqua-vitæ* often distill'd; or use *rosin* or *turpentine*, or the *oil* of it; or *wax*, *suet*, *euphorbium*, *myrrh*, or *artificial borax*: For if *metals* be not malleable, unctuous bodies will oftentimes make them softer.

If either all these, or some of these, be made up with some moisture into little cakes, and when the *metal* yields to the fire, by blowing with the bellows, and some of them be cast in, and be made thick like mud, or clear, then set the *metal* to the fire, that it may be red-hot in burning-coals, take it out, and quench it in them, and so let it remain for half an hour to drink in.

Or daub the *metal* with *dog's-grease*, and melt it with it, for that will take away much of the brittleness of it, and make it so that it may be hammered and wrought.

*To colour METAL like GOLD.*

Take *sal-armoniack*, *white vitriol*, *stone-salt*, *verdigrease*, of each a like quantity in fine powder, lay it upon the *metal*, then put it into the fire for an hour, take it out, and quench it in *urine*, and the *metal* will have the colour of gold.

*To melt METALS quickly.*

Put in a layer or course of the powder of any *metal* into a crucible, then lay upon it a layer of *sulphur*, *salt-petre*, and *saw-dust*, of each a like quantity, mixed together; put a coal of fire to it, and the *metal* will immediately be in a mass.

**M** JOSEPH MARIA METELLI of Bologna, a famous and fantastical engraver of all kinds of subjects, us'd this mark.

### MEZZO-TINTO.

1. Take a well-polished copper-plate, and make it all over rough one way, with a sort of engine particularly design'd for this purpose: then cross it over with the engine again; and if you see occasion, cross it over the third time, 'till it be made rough alike, *viz.* so as if it were to be printed, it would print black all over.

2. The shape or form of this engine, or instrument, is various and manifold, according to the fancy of the artist; those that desire them, may have them of several persons in *London*, who profess and practise the arts of *drawing*, *engraving*, and *etching*.

3. When you have thus rough'd the plate, take *charcoal*, *black chalk*, or *black-lead*, to rub over the plate, and draw the design with white chalk upon the same; then take a sharp stift, and trace out the out-lines of the design, which you have drawn with white chalk.

4. Where you would have the light strike the strongest, take a burnisher, and burnish that part of the plate as clean and smooth, as it was when it was first polished.

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5. Where you would have the light fainter, there you must *not* polish it so much, and after this manner you must either increase the light in your design, making it either fainter or stronger, as the necessity of the work requires.

6. To take an old print off on a piece of white paper, and not spoil the print; smear the print all over with linseed-oil with a clean cloth.

7. Then lay a clean piece of paper over the former, and lay them both upon a polish'd copper-plate, and pass them through the rolling-press, and so will the white paper receive the reverse of the print, or the print backwards.

8. But to take the oil out of the print, you must wash it with oil of spike, or turpentine; then having dry'd it by or over a fire, the linseed oil with the oil of spike will evaporate, and leave the print as fair as it was at first.

MEZZO-TINTO prints are for back-painting upon glass to be preferr'd to those that are engraven; because that the former, if done with a neat and careful hand, and on a good and fine-grounded print, can scarcely be distinguished from limning; whereas in those that are engraven, all the strokes of the graver are plainly visible.

2. Of mezzo-tinto prints, some have a coarse ground, and others a fine and soft one, as if they were no more than the pricks of a pen; whereas the other has soft and fine shadows, like a piece neatly drawn with Indian-ink, or a black-lead pencil.

3. In chusing your prints to work upon, observe the paper they are printed on; if it be too thick, or too much gum'd, that may be discovered by wetting a corner of it with water, or your tongue; where, if it passes not through the paper presently, it is not fit for the purpose; but a thin, spongy paper is what you should chuse.

4. The glass you paint it on, ought not to be common window-glass, for that will spoil your work; but either true and thin ground, and well-polish'd looking-glass, or a sort of fine white glass, call'd Cock-hill glass.

Of laying mezzo-tinto prints upon the glass.

1. Having provided such a glass of the same size as your picture, steep the print flat-ways in warm water for 4 hours, more or less, according to the thickness or thinness, or hardness of the paper; and then with a thin knife or brush, the hairs of which will not come out, spread Venice turpentine very thin and even all over the glass: and if the weather be cold, warm the glass at the fire, and dab it all over with your fingers, that there may not be the least speck of the glass, that is not covered with turpentine.

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2. Then take the print out of the water, and lay it on a table smooth, upon a clean napkin or sheet of paper, or between 2 papers, to dry out all the superfluous water.

3. *When you have done this, lay the print upon the glass by degrees, beginning at one end, and stroking outwards that part which is just fasten'd to the glass, that no wind or water may lie betwixt that and the glass, which will cause blisters, and which you must always be very careful to stroke out.*

4. *If it shall happen that you perceive you have not laid the print on the glass exactly even, then by warming the fore-side of the glass before the fire, it will so soften and thin the turpentine, that you may with care and gentleness take it off again, and lay it on again immediately, not suffering the print to dry.*

5. *Your print being laid on the glass exactly, you must proceed to rubbing it with your finger, to rub off all the thickness of paper, which will roll off in little rolls, 'till nothing of it is left upon the glass but a thin film like a cobweb, that is fast stuck to the glass by the turpentine; but great care is to be taken in rubbing, that you rub not any holes in the print, especially in the lights, which are the most tender parts.*

6. *If your picture be large, so that some part of the paper should grow dry, while you are rubbing the other, you should, with a little water on your finger, wet them now and then, as you see occasion, to keep them moist, for the paper will not rub when grown dry.*

7. *When you have rubb'd or peel'd it all over, so long as 'till you perceive the print appear transparent on the back-side; then set it by to dry for 2 hours; after which, varnish it over with mastick varnish, or turpentine varnish, 4 or 5 times, or so often, 'till you can see clearly through it, and after 24 hours you may proceed to painting it.*

*Another way to do the same.*

*Soak the print in water, and dry it as before, and spread the glass with oil of mastick, or some turpentine, or with mastick varnish, (which see.)*

*Then lay on the print upon the glass exactly as before, and roll or rub off the paper as before, leaving only the shadow or figure behind: you may brush it off with a brush or feather, 'till you see none but the ink or shadow'd part remains, then varnish it over with mastick varnish; then set it by to dry, keep it from dust, 'till you begin to paint it.*

*The painting of mezzo-tinto prints is perform'd with colours, either transparent or opake.*

*The transparent colours are chiefly carmine, fine lake, brown pink, fine smalt, distill'd verdigrease, and ultramarine. The chief opake colours are flake white, yellow or Dutch pink, light and*

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*brown red, terra vert, umber, Cologn-earth, ivory-black, blue, black, vermilion, blue-bice, masticote, yellow and pale red orpiment.*

*Carmin* is the finest and most excellent *red*, and is sometimes sold for 3*l.* an ounce, or more.

*Fine lake* is also an admirable *red*, and is worth about 2*s.* or 2*s.* 6*d.* an ounce.

*Brown* or *glazing pink* is a colour much about the same price as *lake*.

*Fine smalt* is a good blue, and worth 4 or 5*s.* a pound.

*Distill'd verdigrease* ground is a good green, and may be had much about the same rate with *fine lake*, or *brown pink*.

*Ultramarine* is the richest *blue* in the world, but of several prices; the deepest and best is worth 6 or 7*l.* an ounce; a mean sort is sold for 3 or 4*l.* and this is very good, and fit enough for this use: there is another sort that is sold for 20*s.* an ounce, which may serve for painting, but is too coarse for glazing.

*The opake colours are,*

*Flake white*, which finely ground with *nut-oil*, may be had for about 2*s.* the pound. *White-lead* ground in the same oil 1*s.* a pound.

*Yellow* or *Dutch pink*, when ground, 3*s.* 6*d.* a pound.

*Light* and *brown Red*, which are *yellow* and *brown oaker* burnt and ground, 4*s.* the pound.

The same finely ground in *linseed-oil*, 3*d.* an ounce.

*Terra-vert* is but seldom us'd in this painting, but much in all others.

*Umb*er, *Cologn-earth*, and *ivory-black*, and *blue-black* when ground, 3*d.* an ounce.

*Vermilian* finely ground, may be worth about 10*s.* a pound.

*Blue bice*, which is only of use for making of green colours, 4*d.* or 6*d.* an ounce.

*Masticote* the finest and freest from grit, which is of the brightest colour, is best, and is worth 10*s.* an ounce.

*Red orpiment*, which must be mix'd with drying oil, 2*d.* an ounce more.

All the transparent colours must be ground with *nut-oil*; opake colours are ground mostly with gum-water, some with gold size, and some with linseed oil, and drying oil.

*To paint Mezzotinto prints.*

Whether in landskip, or other prints, the first thing you have to do, is to glaze all those places which require it.

But the best way is to work setting, not standing, because you will be able to move your hand and the pencil with the more steadiness.

And it will be proper to have a table-easel to set your glass upon, almost like a reading-desk, excepting that there is a pannel  
or



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or back-board for a book. The painting-desk must be all open, only with 3 or 4 wires to keep the picture from falling through, and a narrow ledge at the bottom for it to stand upon, and little holes made equally distant on both sides of it, as in painters easels, that by pegs or pins, and a ledge laid upon them, you may raise the picture higher or lower, as best agrees with your conveniency.

It will also be best to lay a sheet of white paper behind the picture on the table, and you will find it better to your purpose, than if placed against the window.

*If you would have your glazing to lie thin, and to dry quickly, mix varnish when you lay it on the picture, and in 3 or 4 hours time they will be fit for receiving other colours.*

And in landships you should first glaze the nearest and great trees, grounding them well with *brown pink*; but if you would have them greener, add distill'd *verdigrease*.

*Those trees that you would have of a lively and beautiful green, as also leaves and woods, must be glaz'd with Dutch pink, and distill'd verdigrease; but the trees farther off with verdigrease alone.*

*Hills, mountains, and trees, at the greatest distance of all, are to be glaz'd with fine smalt, a little lake, and verdigrease, all thinly mix'd with varnish.*

*For the sky use ultramarine, or for want of that fine smalt, mix it thin with varnish, and glaze it over 2 or 3 times with a clean large pencil, and a very quick stroke; for if you are tedious, it will dry so fast, that you cannot possibly lay it even.*

If your landships are furnished with figures, buildings, rocks, ruins, &c. they require to be finish'd first of all, before any thing else is done.

The mixtures of colours for these things consist chiefly of *blacks, whites, and yellows*, with sometimes a little *red*: but the mixture, composition, and proportions of them, must always be left to the judgment and experience of the artist, with this consideration, that all the colours for this kind of painting ought to be very light.

Now to finish the *ground-trees and sky* with the rest of the picture, begin as before with the nearest or largest trees, and with *yellow pink* and *white* paint over the lightest leaves; but of the darker colour of *pink*, and a little *smalt*, go cleverly over the darkest and outward leaves with a small pencil dipt in varnish.

Those trees that you would have beautiful, paint with a mixture of *yellow masticote, white, and verdigrease*; the darker parts with *pink, verdigrease, and white*; as also those trees, which

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you glaz'd with *verdigrease* only, they being mix'd very light with *white*.

*But to finish the sky and foresight, if any clouds appear, touch them with varnish and light colours made of white, yellow oaker, and lake.* And with these likewise touch the lightest part of hills and towns at the remotest distances: Also mix *smalt* and *white*, as light as you can, to paint over the sky; and to these add a tincture of *lake*, to shadow over the darkest clouds; making all your colours to lie thin and even.

*If you would have the picture look more lively, set it against the light, or on the easel; and tho' it is painted all over, yet you may perceive the lights and shadows through it: but if not, what was before painted will direct you, your sky and foresight then are to be limned with the same; but lighter colours than the former, and every part beside respectively.*

*To paint a human body, and first the face.*

Glaze and touch the deep shadows thinly with *lake*, *brown pink*, and *varnish*, and the *white* speck and *black* ball of the eye, as the print will direct you; also the round white ball, of a convenient colour.

Make the lips of a fine red with *carmine* or *red lake*, shadow the dark side of the face with *vermilion*, *yellow pink*, and *white*.

Give some touches on the strongest lights of the face, as top of the nose, forehead, by the eyes, mouth and chin, with a colour made of white, pale *masticote*, or *yellow oaker*, and a little *vermilion* mixt according to your discretion.

Then mix it a little darker, and lay it all over the face, that was not painted before; but make the mouth and cheeks somewhat redder.

Then with a fine clean pencil a little worn, hatch and sweeten all your colours and shadows, cleansing the pencil as often as you shall see occasion.

If any part of the picture is too pale, you may help it by the fore-mentioned methods, while your work is moist.

Now here it is to be noted, that you must use no varnish in painting of flesh colours, except what is us'd in glazing their shadows: For, if you should mix varnish with them, you will find this inconvenience, that the colours will dry so fast, that you will not be able to sweeten the shadows with the flesh.

*For a swarthy complexion:*

Mix your *flesh-colour* with *white*, *yellow* or *brown oaker*, and light *red*, with fitting shadows.

Observe the like in painting necks, shoulders, breasts, and naked bodies as in the face.

When any of them are dry, you may go over them again, by which second operation you absolutely mix your colours to your desire.

Keep

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Keep a steady hand, and let not your pencil traverse and go over upon lines of a different colour.

*For the hair :*

Don't use varnish for the hair, nor colours so dark as the life, for the print will darken it; for *black* hair mix *white*, *black*, *red oaker*, with a touch of *lake* or *red*. All which produce an ash-colour; and the hair being covered with it, will produce a natural black.

To make the curls shew stronger, touch the lightest parts with a lighter colour, and the darkest with the contrary, all which may be seen through, if not laid too thick.

*For the drapery :*

If the colour is broken, take care of its mixture, so as to make 3 degrees of the same colour; one the very colour, the other lighter, and the third darker, which is for the darkest folds, as the lightest is for the lightest parts of the garment, and the colour between both for the other parts of the garment.

Embroidery or fringes are done with shell or powdered gold or silver.

Mix your metals with gum-water, and hatch with a fine pencil, or embroider your flowers, and touch the fringes, or what else you desire, before you either glaze or paint the drapery designed.

*For changeable drapery :*

If you would have a purple ground, and yellow lights, dip a fine pencil in varnish, and touch all the lightest parts of the folds thinly with *yellow masticate*, and if need be, repeat it, for your colour must be very thin with varnish; and when it is dry, glaze it over with *lake* and *ultramarine*, or *smalt* with varnish once or twice, letting it dry. Then mix 3 degrees of a purple colour, of *lake*, *smalt*, and *white*, and lay them on as just before was directed.

*The best blue :*

Mix *ultramarine* with thick nut-oil, or if you cannot wait the drying, use varnish instead of nut-oil, and glaze the garment 3 or 4 times over, letting it dry between every time; and being dry, mix 3 degrees of *smalt* and *white*, and very light, and with the clearest white go over the lighter folds, and the rest as reason shall guide you.

Or if you are not willing to be at the charge of *ultramarine*, by the same method glaze it with fine *smalt*, and varnish it as often as the former, and paint it with *white* and *smalt*. An ordinary blue is made with *white* and *smalt*, mixt in several degrees, but without glazing.

*Yellow drapery :*

For the lightest folds mixt *yellow oaker* and *white*, and *brown oaker*

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*oaker* for the shadows ; or if you would have it darker, *umber* ; but do the other folds with *yellow oaker*, or with *white* mixt with *yellow* and *brown pink*.

*The most beautiful yellow.*

Glaze what you would have look pleasant with *brown pink* once or twice, and the darkest parts oftener ; when this is dry, touch the lightest folds with pale *masticote*, and afterwards with *yellow masticote* ; and if any part requires a darker colour, with *yellow* or *brown pink*, and a little *umber*. When it is dry, paint all with *white* except the shadows.

*Purple without glazing.*

Make a mixture of *lake*, *smalt*, and *white*, with which paint your drapery, heightening and darkening the folds as before directed.

*Purple drapery painted and glaz'd.*

Glaze it thin once with *carmine* or *lake*, and when dry, paint it every where with *smalt* and *white*, either lighter or darker as you would have it ; still letting the lightest folds have a lighter colour than the other parts. On the contrary, you may have a purple, by glazing your figure over with *ultramarine* or *smalt*, and painting it with *lake* and *white*.

*Ordinary red without glazing.*

Paint the strongest lights with *white* mix'd with *vermilion*, but the dark shadows with a dark or light *Red*, and the rest with *vermilion* : For the lightest folds, mix light *red* and *white* : For dark folds *brown red* ; for the other parts, light *red* only.

*Another Red almost as good as the first.*

Grind *red lake* finely in oil, temper it well with *drying oil* and *varnish*, and glaze the garments over with this 2 or 3 times, let them dry, and then paint the lightest *white* ; the darkest with light or brown *red*, and the rest of the drapery with light *red* only.

*The finest of all Reds.*

Mix *carmine* with *varnish* alone, and glaze the garment once over with it ; and if you would have it very beautiful, 2 hours after do the same again, let it dry, paint all (except the dark shadows, which should have *red*) with *vermilion* and *white*, or with *vermilion* only. If you can when dry see through the colours, touch the lightest folds over with clear *white*, and they will appear yet more beautiful.

*To prepare prints without glass or straining-frames, after the method of Mezzotinto.*

Steep the print in warm water, as before directed for *Mezzotinto* ; and if the paper be thick, let it lie 4 or 5 hours. After it has been sufficiently soaked, take it out, and lay it on a plain smooth table-glass, or slate smooth, with the print-side downwards,

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wards, and rub it carefully and lightly with a bit of *sponge*, rubbing it off, and peeling it so long, 'till the print appears transparent on the backside; then paste the back of the frame with common paste, and put your print upon it, while it is wet.

Having done this, set it by to dry; and afterwards varnish it on both sides 4 or 5 times with *mastich*, or *turpentine* varnish, that you may against the light see the picture as plain on the backside as on the foreside.

*To varnish, polish, and finish pictures not laid upon glass.*

They are done after the same manner as those on glass, but if you have a mind to adorn, embroider, fringe, or the like with *gold* or *silver*; then touch the foreside of the picture with *shell-gold* or *silver* in gum-water; or else after you have varnish'd it 2 or 3 times with the best *white varnish*, or some other, take the best *gold size*, with which hatch and lay it over with *gold dust*, and with judgment touch and heighten all the strongest lights, and deepen your shadows too on the foreside.

*This gives so much life to the work, that artists themselves have sometimes been deceiv'd, and took it for a piece of real painting.*

If now you have a mind to varnish and polish any of these kinds of prints, lay on the colours fine and soft, and very even on the backside, and set them by for a week, and then you may varnish them.

As to the disposing and laying on of colours, it is the part of a limner's work to do that, which you will be directed to do in the article LIMNING, &c.

*To varnish these prints.*

Take the best *white varnish* (see VARNISH) and *mastich varnish* of each alike, mix them together, and with a fine camel's hair-brush varnish the picture over 4 or 5 times carefully before the fire, (that the varnish may not be chilled) and you will find it to have a very good and firm gloss.

But if you would polish it after varnishing; then you must use only the best *white varnish* without any *mastich varnish* mixt with it, and wash the print or picture over with it 5 or 6 times, after the manner that is done in *Japanning* (which see) and set the picture by for 4 or 5 days, to dry, and then polish it with *water* and *tripoli*, and at last clear it up as you do *white japan*.

M. G. stands for *Matthew Greuter*, engraver, born in *Argentina*, anno 1566.

**NE** MICARINO, an engraver in the *Gothic* manner, us'd this mark.

M. inv.

M. p. & sc.

Mellan

Mel. sc. Roma 1633.

} Are all different marks of *Claudius Mellan* of Paris.

MI.

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MI. AG. FLO. signifies *Michael Angelo* of *Florence*, i. e. *Buonaroti*.

MINES are places under ground, where metals, minerals or precious stones are found.

Therefore as the matter dug out of *mines* is various, the *mines* themselves acquire various denominations; as *gold mines*, *silver mines*, *copper mines*, *iron mines*, *diamond mines*, *salt mines*, *mines of antimony*, of *alum*, &c. As for *mines of gold* and *silver*, the richest and most celebrated are those of *Peru* and *Chili* in *America*, *iron mines* are more abundant in *France* than elsewhere.

*Copper mines* are found chiefly in *Sweden* and *Denmark*.

*Tin mines* abound most in *England*.

*Quicksilver mines* in *Hungary* and *Spain*.

*Diamond mines* in *Golconda*.

*Salt mines* in *Poland*.

*Metallic mines* are chiefly found in mountains, though the reason thereof does not appear.

It is probable, plains may abound as much therewith, if people would dig deep enough.

But plains are commonly cultivated; and besides that, the waters will scarce allow them to be dug. To this also may be added, that the metallic veins always run either horizontal or oblique; and for that reason are easier found on the sides of eminences.

The metallic veins are commonly encompassed with a sort of stone, peculiar to the mine, and are commonly accompanied with several *strata* of different matters, as clay, gravel, rock, &c.

They who work in mines, know by the size and colour of the stones, when they approach the vein.

They discover that there is a *mine* in a mountain by the marcasite or mineral stones falling from it; by the mineral taste of the waters; by the quality of the exhalations raised from it; and by the difference between the earth over the *mines*, and that of the neighbouring parts in the cold time of spring and autumn; the frost lying on the adjacent places, when it thaws about the mines.

To which may be added, that the grounds producing but little grass, and that little, pale and colourless, is an indication of a *mine*.

Some pretend to discover *mines* by the sole virtue of the hazle-tree, out of which they form a forked stick, which they call *virgula divinatoria*, which they say turns of itself in their hands; but differently, according to the different nature of the metals underneath.

This artifice was much talked of in *France* about 50 years since,

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since, and the corpuscular philosophy was called in to account for it ; but it is now in little credit.

There are some *mines* wherein the metals are found at their first openings very crude and imperfect, which yet in time grow ripe and rich.

*Alonso Barba* relates, that in *Potosi* stones have been frequently thrown aside, as not containing any thing considerable of metal ; and yet have been found many years afterwards very full of it.

In an island in the *Tyrrhene* sea, after the *Iron mines* have been exhausted, they stop them up for about 10 years, at the end of which, they find them as rich as before.

MINIATURE } The first name comes from the *Latin* word  
MIGNATURE } *minium*, red-lead, that being a colour much us'd in that kind of painting.

The second *name* is *French*, and is so call'd from MIGNON, fine, pretty, on account of its smallness and delicacy.

*Miniature* is a delicate kind of painting, consisting of little points or dots instead of lines ; usually done on vellum, with very thin simple water-colours.

*Miniature* is distinguish'd from other kinds of painting by the smallness and delicacy of its figures, the weakness of the colours, and faintness of the colouring, and in that it requires to be view'd very near.

Those colours that have the least body, are the best and most commodious for painting in *miniature* ; as *carmine*, *ultramarine*, *fine lakes*, and greens made of the juices of several kinds of herbs and flowers.

Painting in *miniature* is the nicest and most tedious of others, being perform'd wholly with the point of the pencil.

There are some painters, which never use any white colour in *miniature*, but make the ground of the vellum serve to raise their figures ; in which case the lights appear bright in proportion to the depth and strength of the colours of the figures.

Others, before they go to work, give the vellum a light wash with white lead well-prepared and purified.

When the colours are laid on flat without dotting, tho' the figures be small, and the ground either *vellum* or *paper*, it is not called *miniature*, but washing.

The colours for *miniature* may be mix'd up with water of gum-*Arabick*, or gum-*Tragacanth*.

MINIATURE. Tho' in treating of other methods of painting in divers places of these volumes, much has been said that may be applicable to this method of painting in *miniature* ; yet I shall nevertheless specify the characteristics of this kind of painting in particular.



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1. It is in its nature more delicate than any of the other sorts.
2. It requires to be beheld near at hand.
3. It cannot well be executed but in small.
4. It is perform'd on vellum or ivory.
5. The colours are moisten'd with gum-water only.

To succeed well in your attempts this way, you should know how to draw very well: but as most, who concern themselves in this art, are but seldom skill'd in drawing, yet would have the pleasure of painting without the trouble of learning to draw; in which little progress can be made, without time, and much practice; some contrivances have been found to supply the defect in this point, by which a person is enabled to draw without knowing how to do it without them.

The first is call'd *calking*. To do which, you must blacken the backside of the print or drawing you design to copy; and having lightly brush'd off the dusty particles, to prevent their adhering to, and fouling the clean vellum you design to use, lay your original on the vellum, and fasten it thereto with pins: or if instead of the backside of the print, or drawing itself, you blacken only one side of a fair piece of paper, and put this paper between the print or drawing, and your clean vellum, then with a blunted pin or needle trace out the principal strokes of the print or drawing, the out-lines and folds of the draperies, and whatever else need to be distinguish'd, bearing upon the pin or needle hard enough to leave the traces thereof on the vellum beneath.

Reduction is another way proper for those who are not skill'd in drawing, yet notwithstanding would copy a picture, or other piece that cannot be calked. It is done thus; you must divide the whole piece into many small and equal squares, which you are to make with small-coal if the piece be light, and with chalk if the piece be dark, that in either case your squares may be the more conspicuous; then you must make the same number of squares, and of the same bigness, upon paper to draw upon: for if you undertook to do it, at once, upon vellum, as you might fail in the first attempt, you would run the hazard of spoiling your vellum by false strokes; but the whole being duly adjusted upon paper, we calk it upon vellum, as is said above. The original, and the paper being thus mark'd out, observe what is contain'd within each square of the piece you would copy, as a head, an arm, a hand, and so on, and where each is placed; all which you must punctually follow on your paper; and having thus obtain'd the situation of each part, join the whole together. After this manner you may enlarge as well as diminish any piece you please, only by making the squares on the paper larger

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larger than those on the original, or smaller, observing always that they are the same in number.

To copy a picture or any thing else, of the same size, take oiled paper dried, or gold-beater's skin; either of these we lay upon the piece, thro' which you may see the strokes, which trace out with a crayon or pencil. Then take it off, and make it fast to vellum or paper, and holding it up to the light, trace out what has been copied, upon the oiled paper or skin, either with a crayon or a silver pin.

By the help of a window, or a glass held up to the light, are copied all sorts of prints, designs, and other pieces, upon paper or vellum, by fixing them to the paper or vellum you intend to draw upon. This is an easy and good contrivance for copying of the same size.

If you would make the piece look a contrary way, turn the printed or drawn side of the original towards the glass, and fasten the paper or vellum to the backside of it.

There is also a good way to take an exact copy of a picture, which is in oil-colours. Which is, with a pencil and some lake mix'd up with oil, to trace out all the principal strokes of the picture, and applying thereto a paper of the same size; then pass your hand over it, and the strokes of the lake will take the paper, and appear thereon, which you may call as before. Be mindful to clean the picture with the crumb of bread before the lake dries.

Also, to the same end, use coal-dust contain'd in a piece of fine linnen, wherewith pounce the piece you would copy, having first prick'd the principal strokes of it, and fastened a piece of vellum or paper to the wrong side of it.

But for one, who has no hand at drawing, there is a more sure and easy way than any afore-mentioned, by the help of a mathematical instrument, or compass, as it is sometimes call'd, which is commonly compos'd of 10 pieces of wood like rulers, about the sixth of an inch thick, and half an inch broad. As for their length, it may be a foot, more or less, according to the size of the piece you would copy. But that you may not mistake, here follows a representation of it. *See the Plate.*

The board A must be deal, cover'd with a cloth of some sort or other, for the more convenient fastening of the piece you would draw, and what you would draw upon. Then plant the compass with a large pin run through the foot B. If you would draw in small, you must place the original at the first foot C, and the paper or vellum you would draw upon, near to the foot B, removing it to a greater or less distance, according as you would have your piece greater or smaller.

To

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To draw in great from small, you need only shift your copy to the place of your original, putting the former at C, and the latter at B; and in each case you must put a crayon or a silver pin into the foot over your vellum, and a pin somewhat blunted, into the foot over your original, with which you are to follow all the lines, while you bear with your other hand gently upon the pin or crayon on your vellum. If one or the other be well-fitted in the foot, you need not bear thereon at all.

You may draw also of equal size, but to do that you must plant your compass in a different manner, it must be fix'd with a pin or axis run through the centre D; and the original and the copy must be at an equal distance from the centre. In a word, you may draw several copies at a time, and each of a different size, or equal to each other, just as you please.

These are all the helps needful to be known by those, who are unskill'd in drawing. When your piece is sketch'd out upon the vellum, you must with a pencil of thin *carmine* run over all the strokes, that they may not be defaced in working. This done, clean your vellum with crumb of bread.

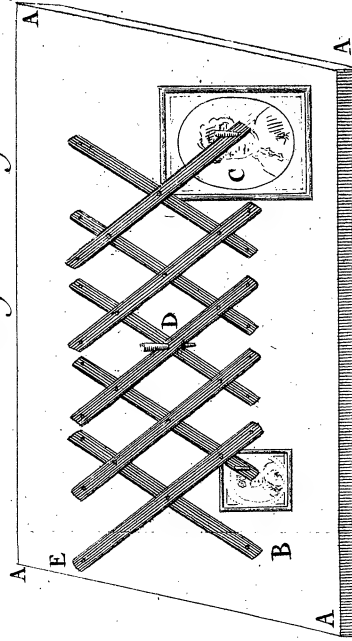
Your vellum must be glued to a copper-plate, or to a piece of thin board, exactly of the same size with your intended piece, to stretch it upon; but your vellum must be a finger's breadth larger every way than what you glue it to, for the way is to lap it round behind, and there glue it, not offering to lay any glue under your paint, not only for fear of some deformity, but also because of the impossibility of taking it off again. But first of all you must moisten the fair side of the vellum with a piece of fine wet linnen, and put a piece of white paper to the back-side of it, and so apply it to the plate or piece of board, and stretching it thereon equally in all directions, glue it as just now directed.

*The colours us'd in miniature painting are,*

Carmine,	Gall-stone
Ultramarine,	Brown oaker,
Lake of all sorts,	French pink,
Vermilion,	Orpiment,
Black lead,	Gamboge,
Brown red,	Naples yellow,
Masticote pale,	Bladder green,
Masticote yellow,	Verditer,
Indigo,	Sea-green,
Ivory-black,	German-ashes,
Lamp-black,	Flake-white,
Spanish brown,	and
Umber,	White lead.

As

*Mathematical Instrument for drawing*





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As all terrene Colours, and other gross substances, are too coarse for fine works, how well soever they may be ground, by reason of a kind of sand which still remains; the finest particles may be separated, by tempering your colour in a cup of fair water. Having stirred it well with your finger, and the whole being thoroughly soaked, let it subside for awhile, and then pour it off, by inclination, into another Vessel; and what you pour off will be the finest particles, which you must afterwards set to dry. The colour thus prepared, must, when you use it, be tempered with gum-water, as shall hereafter be directed. This is a good contrivance, and perfectly calculated for the delicacy of small works.

Greens, blacks, greys, and yellows, these colours being mixed with a little of the gall of ox, carp, or eel, especially of this last, it will give them a lustre and vivacity not natural to them. You must take the gall of eels when they are skinned, and hang them by a nail to dry; and when you use any, you must steep it in brandy, and mingle some of it with the colour already tempered. It will cause the colour to take the vellum more strongly, which it will not easily do when the vellum is greasy; besides, the gall prevents its peeling.

Yellow oaker, brown red, umber, and ultramarine; these are colours which purify by fire, all others blacken thereby: but if you burn the abovenamed colours with a strong fire, they change; for the brown red turns yellow, the yellow oaker turns red, the umber reddens also, and white lead becomes of a lemon colour, and is called Masticot. Observe, that the yellow oaker being burnt, becomes softer and kinder by far than before, and more so than the pure brown red: and reciprocally, the brown red being burnt, becomes more soft and agreeable than the pure yellow oaker; they are both very good. The finest and most pure ultramarine burnt in a red-hot shovel, becomes much more brilliant than before; but refined after this manner, it diminishes, and becomes coarser, and harder to work with in Miniature.

These colours are tempered (in sea-shells, or in small ivory cups made on purpose) with water, in which hath been before dissolved gum-arabick and sugar-candy; for example, in a good glass of water put the quantity of your thumb of gum-arabick, and half that quantity of sugar-candy. This last prevents the colours from scaling when applied, which they commonly do without it, or when the vellum is greasy.

This gum-water must be kept in a bottle always stopped close, and never dip a coloured pencil into it, but take it out with a quill, or some such thing.

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Some of this water you must pour into a shell, together with the colour you use, and temper them with your finger, till the whole be very fine. If you find your colour too hard, leave it to soften in the shell before you temper it, then set it to dry, and so do by all, except the iris-green, and bladder-green, and gamboge, which must be tempered with water only: but ultramarine, lake, and *Spanish* brown, must be more gummed than other colours.

If you use sea-shells, you must first soak them for two or three days in water, then scower them well in hot water, to clear them of a certain salt, which spoils the colours, if not washed away.

To understand when your colours are sufficiently gummed, you need only make a stroke with your tempered colours upon your hand, which will immediately dry: if they break and scale, they are too much gummed; and if they rub out by passing your finger across them, they are not gummed enough. Again, if you lay your colours upon vellum, and upon trial find that the colours come off upon your finger like dust, it shows they are not enough gummed, and therefore you must put more gum into the water you use: take care also, that you put not in too much, for that will have a hard and a dry effect, your colours will be glutinous and shining: thus the more they are gummed, the darker they will be; and if you would have a greater body to a colour than it naturally has, you need only gum it well.

You must have a smooth ivory pallet, of the size of your hand, upon which you must distribute the colours for your carnations or flesh, after this manner: In the middle you must put a quantity of white, well spread out, because it is the colour most resorted to, and from the left to the right of it, along the side, you must place the colours following;

Masticot,  
Orpiment,  
Oaker,

A green, made of ultramarine, *french* pink, and white, of each equal parts.

A blue, made of ultramarine, indico, and white. It must be very pale.

Vermillion,  
Carmine,  
and  
Black.

On the other side of your pallet you must also spread out some white, as before; and when you are to paint draperies, or any thing else, you must near it put the colour you intend to make them of, therewith to work as I shall hereafter instruct.

Good



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Good pencils are of great importance to the work; to chuse which, wet them a little, and twirl them on your finger; if they keep their point, they are good, but if they break into many points of different lengths, they are good for nothing, particularly for *stippling*, (this is a term in *miniature* for making small points or dots) but above all for carnations: when they are too sharp pointed, with only four or five hairs sticking out beyond the rest, you must blunt them carefully with a pair of scissors. It will be proper to have them of two or three sizes; the largest may serve for your grounds, the middling for drawing and colouring, and the least for finishing.

To keep your pencil to a good point, you must often put it between your lips, and press it, and moisten it with your Tongue, though you have just taken up colour with it; for if you have taken up too much, you by this means diminish it, and correct your error. You need not fear any harm from so doing; all the *miniature* colours (except orpiment, which is a poison) have nothing displeasing to the taste, or noxious in themselves, when prepared for use. You must be careful to repeat this very often when you are stippling, or finishing, particularly carnations, that your strokes may be neat and clear. As for draperies and other things, whether in the drawing, colouring, or finishing of them, you need not be so nice: in this case, it will be sufficient if you make your point upon the edge, or rim of your shell, or upon the paper you rest on when you are at work.

To work as you ought, you should be in a room that has but one window, which you must place yourself very near to, with a table and a desk almost as high as the window, and so fix yourself that the light may always strike in on the left hand of you.

When you would lay on a colour equally strong every where, as a ground, for example, you must make your mixtures in shells, and take care that you have enough for that purpose; for if they fall short, you will be put to it to prepare them of exactly the same degrees of light or shade.

Having spoke of vellum, pencils, and colours, I shall next shew how they are to be used. First of all, if you would paint flesh, or drapery, or aught else, you must begin by sketching or drawing with large, bold, yet clear strokes, like those who paint in oil: your lights must, at first, be something brighter, and your shades not quite so dark as is required for finishing; because in stippling thereon you strengthen the colour, which if too dark at first, would in the finishing become too deep.

There are several ways of stippling, or shading, as it may be also called; every painter has his manner; some do it with round points, others make them longish, others again hatch

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with fine strokes crossing each other in all directions, till the whole appears as if stippled, or wrought with points; this last method is the best, boldest, and soonest perfected, wherefore I advise all painters in *miniature* to practise it, and to accustom themselves betimes to be rich, mellow, and soft in their work; that is, that the points may be lost in the ground they are wrought upon, and appear but just enough to evince that the piece is stippled. Hard and dry is the reverse of this manner of working; which proceeds from stippling with a colour too dark for the ground, and too dry a pencil, which gives the work a rude cast or favour.

Endeavour also to drown your colours into each other, that no line of separation may be seen between them, and soften your strokes with the colours on each hand of them, so as to be equally blended with and confounded into each.

When your pieces are finished, heightening them a little has a fine effect; that is, strengthening the lights with touches of a paler colour than at first, which must be softened away into the rest.

When the colours are dry upon your pallet, or in your shells, temper them with pure water, and when you perceive they have lost their gum, which you will find by their easily rubbing out, either on your hand or vellum, as has been said before, temper them with gum-water till they are in good order.

There are several sorts of grounds for pictures and portraits: some are quite brown with *Spanish* brown, umber, &c. with a little black and white; others are more yellow, being mixed with a good deal of oaker; and others are upon the grey with indico.

For this work, make a wash of the colour or mixture you propose, or according to the picture or portrait you are about to copy, and with this thin wash soak or prime your vellum: this done, lay it on thicker, and spread it out boldly, but uniformly, as fast as you can, never touching twice upon one place till it be dry, because the second touch carries off what the first laid on, especially if you bear a little hard upon the pencil.

There are yet other dark grounds, and these are of a greenish colour; which are most in use, and best adapted for all sorts of figures and portraits, because they set off the carnations to great advantage, and are very easily laid, there being no occasion to stipple them, as must often be done to the others, which are seldom uniform at first, whereas these hardly ever miss: you must prepare them with black, *French* pink, and white, mingled together in different proportions, according as you would have your ground lighter or darker: lay it on thin  
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at first, then thick, as before directed. You may mix up grounds of other colours, but these are the most common.

If you are about to paint a Saint upon one of these grounds, and would make a small glory round the head of your figure, you must lay on your ground very thin in that part, or even leave it naked, especially just where the glory ought to be brightest: at first lay on a pretty thick mixture of white, and a little oaker, and as you move off from the head, let your oaker prevail more and more, and that it may die away into the ground, hatch it boldly with a pencil; and as you pursue the round of the glory, take sometimes the colour of the glory, and sometimes that of the ground, mixing some white, or oaker when it is rather too dark, and this continue till they are utterly confounded or scumbled in each other, and that no separation between them be distinguishable.

To make a ground all of glory, you first lay a bright mixture of a little oaker and white, adding more and more of the first, as you draw more and more towards the extremities of the intended picture; and when the oaker happens not to be dark enough (for you must go on darkening and darkening) add gall-stone, then carmine, and at last *Spanish* brown. This ground you must lay in such manner, that the different degrees of darkness may, as much as possible, insensibly increase and strengthen. Then you must stipple the whole with the same colours to blend it nicely together, which is tedious and difficult enough; particularly when there are clouds of glory in your ground. You must strengthen their lights as you remove from the figure, and finish still with stippling, swelling out the said clouds, whose lights and shades must be imperceptibly lost into each other.

For a day-sky, you must mingle some ultramarine with a great deal of white, and lay it on as smooth and uniform as possible, with a large pencil and broad strokes, as for grounds, laying it on paler and paler as you descend towards the horizon, which you must make of vermillion and mine-de-plumb and of white, of the strength as finishes the sky, and even a little weaker; artfully blending the blue and red, which must come down to the front, mingling, at last, gall-stone and a good deal of white, so that the mixture may be paler than the first; and all this must be so laid on, that no separation be seen of the colours of this sky.

When there are to be clouds in your sky, you need lay on no blue where they are to be, but sketch them out (if they are reddish) with vermillion, gall-stone, and white, together with a little indico; and if they happen to be darker, you must use a great deal of this last, making the lights of one and the other with masticot, vermillion, and white, the proportions of each

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more or less, according to the degree of strength you would give them, or according to the original before you, swelling out the whole with stippling; for it is a hard matter to lay them on uniformly in the drawing: and if the sky be not sufficiently uniform, you must stipple that likewise.

**N. B.** You may also cover the places of your clouds in laying on the ground of the sky, heightening the lights with a good deal of white, and deepening the shades: this is the most expeditious way.

A stormy or night-sky, is made with indico, black, and white mixed together, which is laid on like the day-sky. To these add vermillion, oaker, and brown red, for the clouds, whose lights must be of masticot, or mine-de-plumb, and a little white, sometimes redder and sometimes yellower, as necessity shall require: and when it is a stormy sky, and that in some parts you see lights, whether blue or red, you may order them as in a day-sky, scumbling the whole together in drawing and finishing.

Pink is of no particular class, and easily takes the qualities of the others; so you may make it dark and heavy, by mixing it with colours that are so; and on the contrary, faint, weak, or fading, by mingling it with white or blue.

Brown red, umber, dark greens, and bistre, are the heaviest and next to black.

All masters who are versed in perspective, and the harmony of colours, always take care to use their strong colours for their fore grounds, and the weaker for distant views. As for the union of colours, you may by mixing them together understand the friendship or aversion they have for each other, and from thence take your hints, and consult the pleasure of the eye.

For laces, point, and the like, lay on first a mixture of blue, black, and white, as for linnens; then heighten the pattern, flowers, or flourishes, with white only; then shade and finish with the first colour. When they are upon flesh, or any thing else which you would have seen through them, finish what is under them, as if you intended to lay nothing thereon, and then lay on the lace or point, with pure white, and finish with the other mixture.

In painting a fur, lay on a ground, as for drapery, according to the colours of it, and then shade by the same rule; and having done, instead of stippling, draw fine strokes, this way, that way, and t'other way, according to the grain of the fur you aim at: heighten the lights of a brown fur with oaker and white, and those of a light fur with white, and a little blue.

For a building, if it be stone, take indico, bistre, and white, for your dead colouring, or ground, and then shade with less of this last, and more of the bistre than indico, according to  
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the colour of the stones you would make: you may also add a little oaker, both to begin with and to finish. But to add still to its beauty, you must here and there, especially for ruins, make yellow and blue tints, the former of oaker, and the latter of ultramarine, always mixing them with white; whether for your first ground, provided they appear through what you lay upon them, or whether you use them at last, finishing and blending them with the rest.

For wooden buildings, they are left to your discretion, as being of different kinds; but the most common way is to begin with a mixture of oaker, bistre, and white, and finish with no white, or with very little; and when the shades require strength, with bistre only. For others, you may add sometimes vermillion, and sometimes green, or black; in a word, according to what you intend you must mix your colour, and finish with stippling, as for draperies and all the rest.

The instructions laid down for the mixtures of different tints for the finishing of flesh, and other things, may be of particular use when you work after prints, where you have nothing before you but black and white, and they will not be much more unuseful when you begin to copy after paint, though you know not how to handle your colours, and happen not to be acquainted with their power and effect. For there is this difference between *miniature* and painting in oil, that in this last the colours were taken off from the pallet, just as they appear to you in the picture; so that in this case, you have nothing to consult but such a light and such a shade. Now it is far from being the same in *miniature*, where often it happens that the last colouring you lay on does not preserve its colour, but partakes of the colour beneath, or rather, the one and the other compose a new one, to form the effect you aim at; for altho' it be white, green, carmine, blue, orpiment, bistre, and the like, which form your colouring, they nevertheless would not produce it, if they were mixed together; for it is by proceeding from one to the other that you can succeed: and when you have a piece of this kind before you, without having seen how it is done, you must be a conjurer at least, to guess at the order and method it was done in, without the help of a master or a book.

MINIUM, or RED-LEAD, is as heavy and strong a colour as most we have; but when prepared, is the most delightful one; that is, when it is well washed and cleansed of its more weighty parts, which cause it to turn black.

Mr. Boyle directs the preparing or cleansing it as follows; Put four ounces of it in a quart of rain-water; then stir it, and pour off the water immediately, and let it settle to the

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bottom of every cup or glass you pour it into; then pour off that water, and in a day's time you will have the colour dry, and as fine as you can desire; then put a little *gum-arabick* into each glass or cup, and as much water as will moisten each of them.

Any of these may be afterwards used with gum-water, but if the gum you put in at first make it strong enough to glaze it, then you need add to it only common water; and according as your colour is less or more gummed, use less or more gum-water; for of it self it is a dead colour.

When you use this colour, touch it gently on the *yellow* mentioned, made of *yellow berries*, into the light side, and if it wants a shade, you may put a little *vermillion* upon it; but *vermillion* is too heavy to paint with, when you would illuminate prints, because it hides the shades of the engraving; though sometimes they had better be hidden than appear.

Some generally shade this *minium* or *red-lead* with *carmine*, which gives it a fine effect, and renders it equal to the brightest red flower that is to be seen, leaving still the lights uncoloured, only dashing a little way into the lights with the *minium*.

When the *carmine* has shaded the *minium* or *red-lead*, it may be shaded again with *lake* in the strongest part, to bring it to a deeper *red*.

**MIRROIRS** } [in *catoptricks*] is a name given to all polished bodies, which are impervious to the rays of light, and which consequently reflect it equally; but in the more confined sense of the word, it is peculiarly used to signify plain or smooth surfaces of glass, silvered on the back-side, which exhibit the images of objects opposed to them.

### The DOCTRINE of MIRROURS.

1. *Light reflected from any mirror or looking-glass, makes the angle of incidence equal to that of reflection.*

Hence a ray of light falling perpendicularly on the surface of a mirror or looking-glass, will be reflected back upon itself, as is found by experience it actually does.

Therefore from the same point of a *mirror*, there cannot be several rays reflected to the same point, nor can the ray be reflected into two or more points.

2. *From every point of a mirror are reflected rays thrown on it from every point of a radiant object.* Since then, rays coming from different parts of the same object, and striking on the same point of the object, cannot be reflected back to the same point; the rays which flow from different points of the same radiating object are again separated after reflection, so that each point shews whence it came.

Hence



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Hence it is, that the rays reflected from *mirrours* exhibit the objects to view.

Hence also it appears, that rough, uneven bodies must reflect the light in such manner, as that rays coming from different points, will be blended or thrown confusedly together.

*Mirrours* are either *plain*, *concave*, *convex*, &c.

*Plain mirrours* are such as have flat surfaces, as *looking-glasses*.

*The laws and phenomena of plain mirrours.*

I. In a plain mirrour, every point of an object is seen in the intersection of the cathetus of incidence with the reflected Ray. Hence,

1. As all the reflected rays meet with the cathetus of incidence; by whatever reflected rays the radiating point be seen, it will still appear in the same place: And consequently any number of persons, viewing the same object, in the same *mirrour* or *looking-glass*, will all see it in the same place behind the *mirrour*. And hence it is, that the same object has only one image; and that we don't see it double with both eyes.

2. The distance of the image from the eye is compounded of the ray of incidence, and the reflected ray; and the object radiates reflectedly in the same manner, as it would do directly, were it remov'd into the place of the image.

II. The image of a radiant point appears just so far behind a *plain mirrour*, as the radiant point is before it. Hence, 1. If a *mirrour* be plac'd horizontall, the radiating Point will seem so much below the horizon, as it is really elevated above it: and consequently erect Objects will appear as if inverted; and therefore men standing on their feet, will appear as if standing on their heads.

Or if the *mirrour* be fastened to the cieling of a room, parallel to the horizon, objects on the floor will appear above the cieling, as much as they are really below it; and that upside down.

III. In a *plain mirrour*, the images are perfectly similar, and equal to the objects; and hence their Use, as *looking-glasses*.

IV. In a *plain mirrour*, things on the right hand appear as on the left, and those on the left as on the right.

Hence also is produc'd a method of measuring any height that is inaccessible by means of a *plain mirrour*.

Thus a *mirrour* being plac'd horizontally on the ground, retire from it, 'till such time as the top of a steeple, tree, or any other high object may be seen in it, and then measure the height of the eye, the distance of the station from the point of reflection, and the distance of the foot of the steeple, &c. from the same, and then find a fourth proportional to these three, and it will be the height sought.

V.



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V. If a plain *mirroure* be inclin'd to the horizon in an angle of 45 degrees; an object, which is perpendicular to it, will appear parallel, and an horizontal object perpendicular.

And hence the eye being plac'd beneath the *mirroure*, the earth will appear perpendicularly over it; or if it be plac'd over it, the earth will appear perpendicularly under it.

Hence also a globe descending down a plane a little inclin'd, may, by means of a *mirroure*, be exhibited or shewn, as if mounting up a vertical plane, to the great surprize of such as are unacquainted with catoptricks.

*And hence is a method, by which a person may represent himself as if flying.*

For a *mirroure* or *looking-glass* inclin'd to the horizon, under an angle of 45 degrees, it will represent vertical objects, as if horizontal. Consequently a large *looking-glass* being so posited; as you advance toward it, you will seem to move horizontally; and nothing will be wanting to the appearance of flying, but to strike out the arms and legs.

But this is to be observ'd, that as the floor is elevated along with you, your feet will still be seen to walk, as along a vertical plane; therefore to deceive the eye entirely, it must be kept from the feet.

VI. If the object be parallel to the looking-glass, and be equally distant from it, with the eye, the reflecting line will be half the length of the object.

And hence to be able to see the whole Body in a looking-glass, its heighth and breadth must be half your heighth and breadth; and consequently the height and breadth of any object to be seen in a *looking-glass* or *mirroure*, being given, the height and breadth of the *mirroure*, in which the whole object will appear, at the same distance with the eye, is also given.

Hence also as the length and breadth of the reflecting part of the *looking-glass* are sub-duple of those of the object to be reflected; the reflecting part of the *looking-glass* is to the surface reflected in a sub-quadruple ratio.

Consequently the reflecting portion being a constant quantity; if in any place you see the whole body in a *looking-glass*, you will see it in every other place, whether you approach nearer, or recede farther from it.

VII. If several *looking-glasses*, or several fragments, or pieces of a *looking-glass* be all dispos'd in the same plane, they will only exhibit an object once.

VIII. If two *looking-glasses* be join'd at an angle, the eye plac'd within that angle will see the image of an object plac'd within the same, as often repeated as there may be catheti (or sides) drawn, determining the places of the images, and terminated without the angle.

Hence

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Hence as the more *catheti* terminated without the angle, may be drawn, as the angle is more acute; the acuter the angle, the more numerous the images.

Further, if the *looking-glasses* be plac'd upright, and so contracted; or if you retire from them, or approach to them, till the images reflected by them coalesce, or run into one, they will appear monstrously distorted.

Thus if they be at an angle something greater than a right one, you will see it with only one eye; if the angle be less than a right one, you will see 3 eyes, 2 noses, 2 mouths, &c.

At an angle still less, the body will have 2 heads.

At an angle something greater than a right one, at the distance of 4 feet, the body will be headless, &c.

And if the glasses be plac'd the one parallel to the horizon, and the other inclin'd to it, or declin'd from it, it is easy to perceive, that the image will be still more romantick.

Thus one being declin'd from the horizon to an angle of 144 degrees, and the other inclin'd to it; a man sees himself standing with his head to another's feet.

Hence it appears how *mirrours* or *looking-glass*s may be manag'd in gardens, &c. so as to convert the images of those near them into monsters of various kinds: and since glass *mirrours* will reflect the image of a lucid object twice or thrice; if a candle, &c. be plac'd between the *mirrours*, it will be multiply'd an infinite number of times.

*Wolfius* relates, that an artist of *Dresden* in *Saxony* made *burning mirrours* of wood, larger than those of either *M. Schirnhaus* or *Villette*, which had effects at least equal to any of them.

And we are instructed by *Traberus* how to make burning *mirrours* of *leaf-gold*, viz. by turning a concave, and laying the inside over equally with pitch, and covering that with square-pieces, 2 or 3 fingers broad, fastening them on, if need be, by the fire.

He tells us, that very large *mirrours* may be made of 30, 40, or more concave pieces, artfully join'd in a turn'd wooden dish, or skuttle, the effects of which will not be much less than if the surface was continuous.

*Zabnius* informs us, that one *Newman*, an engineer at *Vienna*, did in the year 1699, make a *mirrour* of paste-board covered on the inside with straw glued to it, by which all kinds of metals, &c. were melted.

*How to make spherical concaves and convex glasses, commonly call'd BURNING MIRROURS.*

The use of these glasses is to unite the sun-beams, and to kindle a *flambeaux*, wood, or any combustible matter. By them metals also may be dissolv'd in a little time, as easily as in a crucible in a furnace.

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The whole mystery of making them is to have the moulds of a round shape, otherwise they have but a very weak effect on the sun-beams; the moulds must be so exactly made, that neither side shall differ from the other.

To make the *convex glass*, your mould must be convex, and the convexity of it must be made by the sphere, according as you would have it greater or lesser; and it is from this sphere the convexity of the *mirrour* must be taken: As for instance, take a sphere of what bigness you please, divide it equally, and also one of the hemispheres in 3 equal parts, by planes parallel to the great circle; the convex segment shall then be the sixth part of the whole sphere, and the measure of your *mirrour*.

If you would make the *mirrour* a *convex glass*, you must have *concave moulds*, and these you may do two ways.

Take the two concave sides of the mould, and closing them together equally, as the founders do their frames; pouring through the mouth of the mould your crystal metal, letting it fill the mould, and afterwards cool.

Another way is to take two *concave mirrors*, and joining their faces, folder them well all about, only leaving a small orifice, through which you may fill it with some *aqua vitæ*, and then stop the whole, and frame them with wood or metal.

This sort of *mirrour* has a more ready influence on the sun-beams than any other: These glasses must be very well-polished.

These *burning-glasses* may be made parabolick, or spheroidal, and such have still a better effect than the spherick; you must proceed as to the moulding them, as you do in the former; you must observe a just proportion in doing them: for when they are too much rais'd, they are hindered by their depth from having a good effect, and upon this depends the whole nicety of the art.

To make metal MIRRORS, concave sphericks or parabolicks, usually call'd *steel burning mirrors*. The moulds for them are prepar'd as for the former, whether *concave* or *convex*; and as for such as are flat, they may be cast in sand.

The metal of these *mirrors* is call'd steel, because it is of a very hard and bright compoſure and temper; and the harder the metal, the better the *mirrour*, and the easier to polish. The whiteness of it is very convenient for giving the quality of burning, and not only for that, but several other uses; if it be too red or black, it alters the true distance and colour of its opposite objects, they may therefore make them of the following composition.

Take 3 pounds of *copper*, 1 pound of fine *tin*, half an ounce of *white arsenick*, and an ounce of *tartar*; first melt the *copper*, then put the *tin* in, immerg'd in the *copper*, or else it will  
fume

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fume away in the melting, and leave the *copper* behind; these 2 being well melted together, then cast in the *arsenick* and *tartar*; after this, let all melt for 2 or 3 hours, and then mould it.

Some persons dose with the former weight of *copper* and *tin*, half a pound of *white arsenick*; others, instead of *white arsenick* put in a quarter of a pound of *antimony*.

*Another.* Take a pound of well-refined *copper*, melt it, then add 3 pounds of fine *tin*; as soon as these are melted, add 6 ounces of *red tartar* calcin'd, 1 ounce of *salt-petre*, 2 drachms of *alum*, and 3 ounces of *arsenick*; let these melt for 3 or 4 hours, that the salts may evaporate, and the stuff will be fit for moulding. This stuff is more solid and hard than the other.

Another more excellent composition for *concaues*, on account of the hardness and compactness of it, and it being more capable of polishing, is consequently much better than the others.

Take plates of *copper* 1 pound, cut them small, that they may be put into a crucible, imbibing them with oil of *tartar*; then powder a quarter of a pound of *white arsenick*, and put them layer upon layer 'till the crucible is full; and afterwards pour on them *linseed-oil*, to cover the *arsenick* and the *copper*; head and lute the crucible well, and when the lute is dry, set it in a sand-furnace, letting the sand arise no higher than the head: heat the furnace very gently, 'till it arrive to a just degree, and the oil begins to evaporate. By this time the oil will prepare the *copper* for retaining the *arsenick*, which must enter the *copper*, as easily as oil does leather; set it again on fresh sand, and increase the heat of the furnace, giving it the same degree as before, until the oil evaporate and boil up; then take off the crucible, let it cool and break it, and you will find the *copper* of several colours; and would be much better, if instead of *arsenick* you made use of *orpiment*.

Take of this *copper* one part, of *latten* 2 parts, melt the *latten* on a smart fire, and then put in the *copper*; when they are well melted, cast the metal drop by drop into a glaz'd vessel, full of water, over which lay a brush or broom for the stuff to go through: thus you will have a metal not to be touch'd with a file, nor brittle, and as good as any steel for all uses whatsoever.

Take of this hard metal 3 parts, and the best *tin* of *Cornwal*, which has no lead in it one part, melt the metal before you put in the *tin*; and after these are well incorporated, you may fill your moulds, &c.

This is the best composition of all, for making of all sorts of these *mirrours*; it is white, hard, not brittle, and very easily polish'd, exceeding fine.

The following composition given by *Wolffius*, is by some recommended as the best that is known for making *mirrours*.

Melt

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Melt one part of *tin*, and another of *marcasite* together, and to the melted matter add 2 pounds of *mercury*: as soon as the *mercury* begins to evaporate into smoke (which it presently does) the whole composition is to be thrown into cold water, and when cold, the water decanted off.

The mixture is then to be strain'd through a linnen cloth, 2 or 3 double; and what is thus secerned, poured into the cavity of a glass sphere: this sphere is to be turn'd gently round its axis, 'till the whole surface is cover'd; the remainder being reserv'd for future use.

If the sphere were of coloured glass, the *mirrour* will be so too.

### *The Phænomena of* CONCAVE MIRROURS.

1. Since the image of an object, included between 2 lines, at a distance less than one fourth of the diameter, may exceed the just height and breadth of the object; nay, may be made of any magnitude, how big soever: Objects plac'd between the focus and *mirrour*, must appear of enormous magnitudes in *concave mirrours*; the image being so much the greater in the *concave mirrour* as it is less in the *convex*.

2. In a *convex mirrour*, the image of a remote object appears nearer the centre than that of a nearer object: therefore in a *concave mirrour*, the image of an object remote from the *mirrour*, appears at a greater distance than that of a nearer object, provided the distance of the object from that of the centre, be less than a fourth part of the diameter.

3. In a *convex speculum*, the image of a remote object is less than that of a near one; therefore in a *concave* one, the image of an object plac'd between the *focus* and the *mirrour* is nearer the *focus* than the *speculum*.

4. The image therefore of an object receding continually from a *concave speculum* becomes continually greater, provided it don't recede beyond the *focus*, where it becomes confus'd, and as it approaches, it grows continually less.

6. If an object be placed between a *concave mirrour* and its *focus*, its image will appear behind the *mirrour*, in an erected but inverted situation.

### *The Phænomena of* CONVEX MIRROURS.

1. In a spherical *convex mirrour* the image is less than the object.

And hence such *mirrours* are of use<sup>s</sup> in the art of *painting*, where objects are to be represented less than the life.

2. In a *convex mirrour*, the more remote the object is, the less the image is; and again the smaller the *mirrour*, the less the image.

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3. In a *convex mirrour*, the right is turn'd to the left, and the left to the right; and magnitudes perpendicularly to the *mirrour* are turned topsy-turvy.

4. The image of a right line perpendicular to the *mirrour* is a right line; but that of a right line, either oblique to the *mirrour*, or parallel to it, is *convex*.

5. Rays reflected from a *convex mirrour* diverge more than if reflected from a *plane mirrour*.

6. Rays reflected from a *convex mirrour*, of a smaller sphere, diverge more than if reflected from a larger.

### *To polish the Steel* MIRROURS.

Whatsoever exactness you use in moulding these, they do never receive their true shape and perfection, until they are polished and burnished; in doing which, lest you should spoil or endamage them, you must work away the outside at the wheel with the sand-stone, which the pewterers and brasiers use, and then apply the handle, and polish them sufficiently, by rubbing with water.

When this is done, take it off this wheel, and put it on the second, and rub it with *emery* prepar'd, that it may be finely polish'd, so that the scars may be scarce perceptible. Do this in an oblique line.

Then take it off this, and set it on such another, and rub it with *blood-stone* prepar'd, and afterwards use *calx of tin*, working it for a long time until it have its due burnish and perfection, still doing it in the same obliquity.

These *mirrours* may be also polish'd with lead artificially melted, with *emery* and water for the first process; and very fine *emery* and lead for the second, and in the last with *blood-stone* and *tin-drops*: these make a finer burnish than the former; for the *mirrour* is highly polished by the *tin-drops*.

### *Others direct for the polishing of the* MIRROUR;

After the *mirrour* has been cast off some of the compositions and moulds before-directed, and taken out of them, let it be cemented to a wooden frame, and thus work'd to and fro over the convex stone mould; first with water and sand, and lastly without sand, 'till it be fit for polishing, which do as follows;

Cover the stone mould over with paper, and smear that over with *Tripoli* dust and *calx of tin*, and work the *mirrour* over it to and fro, 'till it has gotten a perfect polish.

In the same manner may glass *mirrours* be polish'd, excepting that in them the convex surface is wrought in the concave mould.

For concave *mirrours* of glass, the mould may be made of *alabaster*, the rest as in metal *mirrours*. When the *mirrours* are very large, they are fix'd on a table, and first ground with a gritty



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gritty stone, and then with *pumice*, and then with fine sand by means of a glass cemented to a wooden frame; and in the last operation wrought with *calx of tin*, and *Tripoli* dust, by a wet leather.

These *mirrours* must be kept from the moistness of the air, and steams; or if they should happen to be injured by them, they may be restor'd by rubbing on them a piece of deer or goat's skin, humouring the oblique line; no woollen or linnen stuff must be us'd about these *mirrours*, for they spoil them.

*Archimedes* is storied to have made a very happy use of *burning mirrours* in the defence of his country, when he burnt the fleet of *Marcellus* before *Syracuse*, by placing his *burning glass* on the highest turret in the city, whence proceeded such a mighty conflagration, as destroy'd that vast *Flota*, in spite of *Nep-tune* and the waters.

Also *Proclus*, that brave and famous mathematician, burnt the fleet of *Vitellian*, who came to besiege *Constantinople*, which he preserv'd by his industry.

Many other fine and admirable relations might be given of the effects of *burning mirrours*, too numerous to be here mentioned.

MIRTH is represented [in *Painting*, &c.] by a youth with jolly plump cheeks, clothed in white raiment, painted with green branches; flowers red and yellow, with a garland of several flowers, holding a crystal glass full of claret in one hand, and in the other a golden cup, and in a dancing posture in a flowery meadow.

Flowers do naturally import a jovial humour, and we say the fields smile, when covered with flowers. The glass and golden cup intimate, that *mirth* is rarely alone, but in *good fellowship*.

M. L. signifies *Melchior Lonichius*.

M. Merian signifies *Matthew Merian*.

**HEROM** HIERONIMUS MOCETUS, he published the resurrection of our Saviour, and several battles, and us'd this mark.

PELLEGRINO da MODENA, scholar of *Raphael*, liv'd at *Rome* and *Modena*, excell'd in history-painting.

MODESTY is represented [in *Painting*, &c.] by a young girl, holding a sceptre in her right hand, having an eye on the top, clothed all in white, girded with a golden girdle, with her head inclin'd to the left, and in a plain head-dress.

Her plain head-dress intimates, that she is *content* with a little, observing a due *decorum*; the girdle denotes the subduing of the unruly passions; her down and sedate look shew her *modesty*, the sceptre and eye signify that she has an eye to *danger*, and regards the subduing of her *passions*, to make them submit to reason.

PIER.



## M O S

PIER FRANCESCO MOLA, born in 1609, a scholar of *Albani*, liv'd in *Rome*, excell'd in history, died in the year 1665, aged 56 years.

Sir ANTHONY MORE of *Utrecht*, born in the year 1519, scholar of *Schoorel*, liv'd in *Italy*, *Spain*, *Flanders*, *England*, excell'd in history and portraits, died in the year 1575, aged 56 years.

MORISCO } Is a kind of painting, carving, &c. done after  
MORISK } the manner of the *Moors*; consisting of several grotesque pieces and compartments, promiscuously mingled, not containing any perfect figure of a Man, or other animal; but a wild resemblance of birds, beasts, trees, &c.

MOSAIC } Is an assemblage of little pieces of glass,  
MOSAIC WORK } marble, precious stones, &c. of various colours, cut square and cemented on a ground of *Stuc*, &c. imitating the natural colour and degradation of *painting*.

In performing this Work, they provide little pieces of glass, of as many different colours as they possibly can.

For this purpose a glass-maker's furnace being prepar'd, and the pots or crucibles, full of the matter of which glass is made; they put into each crucible what colour or dye they think fit, always beginning with the weakest, and augmenting the strength of the colour from crucible to crucible, 'till they come to the deepest tincture.

When the glass has been thoroughly concocted, and the colours are in their perfection, they take out the glass hot as it is, and pour it on a smooth marble, flattening it down with another like marble, and then cut it into slices of equal bigness, and about the thickness of an inch and half.

Then with an instrument, which the *Italians* call *Bocca di Cane*, they make some pieces square, and others of different forms and sizes, as occasion requires: These pieces are orderly dispos'd in cases, as in painting *in fresco*; it is usual to range all the different tints in shells, and according to their colour.

If it be desired to have gold, either in the ground of the painting, or in the ornaments or draperies, they take some of the pieces of glass, form'd and cut in the manner before-mentioned. These they moisten on one side with gum-water, and afterwards lay them over with leaf-gold; then they put this piece, or several pieces at a time, on a fire-shovel, and place it in the mouth of the furnace, after they have first covered them with another hollow piece of glass. These are let to stand 'till they are just red-hot, then the shovel is drawn out all at once, and the gold becomes so firmly attach'd to the glass, that it will never afterwards come off.

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Now in order to apply these several pieces, and out of them to form a picture, they in the first place procure a cartoon or design to be drawn; this is transferr'd to the ground or plaister by calking, as in painting *in fresco*. See FRESKO.

As this plaister is to be laid thick on the wall, and therefore will continue fresh and soft a considerable time, so that there may be enough prepar'd at once, to serve for as much work as will take up 3 or 4 days.

This plaister is compos'd of *lime*, made of *hard stone*, with *brick-dust* very fine, *gum Tragacanth*, and *whites of eggs*; when this plaister has been thus prepar'd and laid on the wall, and made the design of what is to be represented; they take out the little pieces of glass with a pair of plyers, and range them one after another, still keeping strictly to the light shadow, different tints and colours represented in the design before; pressing or flattening them down with a ruler, which serves both to sink them within the ground, and to render the surface even.

Thus in a long time, and a tedious deal of labour, they finish the work, which is still the more beautiful, as the pieces of glass are more uniform, and rang'd at an even height.

Some of these pieces of *Mosaic Work* are perform'd with that exactness, that they appear as smooth as a table of marble, and as finish'd and masterly as a painting in *fresco*; with this advantage, that they have a fine lustre, and will last ages.

The finest works of this kind, that have remain'd 'till our time, and those by whom the moderns have retriev'd the art, which was in a manner lost, are those in the church of *St. Agnes*, formerly the temple of *Bacchus* at *Rome*; at *Pisa*, *Florence*, and other cities of *Italy*.

The most esteem'd among the works of the moderns are those of *Joseph Pine*, and the chevalier *Lanfranc* in the church of *St. Peter* at *Rome*: There are also very good ones at *Venice*.

MOSAIC WORK of *marble and precious stones*.

These two kinds of *Mosaic* bear so near a resemblance to each other, as to the manner of working, that to avoid repetition, we shall give them both under one; taking notice by the way, wherein the one differs from the other, either in the sawing, or the ranging of the stones.

*Mosaic Work of marble* is us'd in large works, as in pavements of churches, *basilics*, and palaces; and in the incrustation and vaneering of the walls of the same edifices.

As for that of *precious stones*, it is only us'd in small works, as ornaments for altar-pieces, tables for rich-cabinets, precious stones being so very dear.

Tho' out of these must be excepted that sumptuous chapel of the *Dukes of Tuscany*, which has been so long in hand, and which,

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which, if ever it be finish'd, will be a noble monument of the magnificence of those princes, and also of the patience and address of the workmen employ'd therein.

The ground of MOSAIC Works, wholly marble, is usually a massive marble, either white or black.

On this ground the design is cut with a chissel, after it has been first calqued.

After it has been cut of a considerable depth, *i. e.* an inch or more, the cavities are filled up with marble of a proper colour, first fashioned according to the design, and reduc'd to the thickness of the indentures with various instruments.

To make the pieces thus inserted into the indentures cleave fast, whose several colours are to imitate those of the design, they use a *Stuc*, composed of lime and marble-dust; or a kind of *mastic*, which is prepar'd by each workman, after a different manner peculiar to himself.

The figures being mark'd out, the painter or sculptor himself draws with a pencil the colours of the figures, not determined by the ground, and in the same manner makes strokes or hatchings in the place, where shadows are to be; and after he has engraven with the chissel all the strokes thus drawn, he fills them up with a black *mastic*, compos'd partly of *Burgundy* pitch poured on hot; taking off afterwards what is superfluous, with a piece of soft stone or brick, which, together with water and beaten cement, takes away the *mastic*, polishes the marble, and renders the whole so even, that one would imagine it only consisted of one piece.

This is the kind of *Mosaic* work, that is seen in the pompous church of the Invalids in *Paris*, and the fine chapel at *Versailles*, with which some intire apartments of that palace are incrustated.

As for *Mosaic* work of precious stones, other and finer instruments are requir'd than those us'd in marble; as drills, wheels, &c. us'd by lapidaries and engravers on stone.

As none but the richest marbles and stones enter this work, to make them go the further, they are sawn into the thinnest leaves imaginable, scarce exceeding half a line in thickness; the block to be sawn is fastened firmly with cords on the bench, and only rais'd a little on a piece of wood, one or two inches high.

Two iron pins, which are on one side the block, and which serve to fasten it, are put into a vice contrived for the purpose, and with a kind of saw or bow, made of fine brass wire, bent on a piece of spongy wood, together with emery steep'd in water, the leaf is gradually fashioned by following the stroke of the design, made on paper, and glued on the piece.

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When there are pieces enough fastened to form an intire flower, or some other part of the design, they are apply'd to the ground.

The ground which supports this *Mosaic* work is usually of free-stone.

The matter, with which the stones are join'd together, is a *mastic*, or kind of *stuc*, laid very thin on the leaves, as they are fashioned; and this being done, the leaves are apply'd with plyers.

If any contour, or side of a leaf, be not either squar'd or rounded sufficiently, so as to fit the place exactly, into which it is to be inserted, when 'tis too large, it is to be brought down with a brass file or rasp; and if it be too little, it is manag'd with a drill and other instruments us'd by lapidaries.

*The manner of performing MOSAIC Work of GYPSUM.*

*Gypsum* is a kind of coarse *Talc*, or a shining transparent stone, found in the quarries of *Mont-Martre* near *Paris*: it is different from the *plaster of Paris*, but retains the name which the *Romans* gave to the plaster, viz. *Gypsum*.

Of this *Gypsum*, or stone calcin'd in a kiln, and beaten in a mortar, and sifted, the *French* workmen make a sort of artificial marbles, imitating precious stones, and of these they compose a kind of *Mosaic* work, which does not come far short, either of the durableness or the vivacity of the natural stones; and which besides has this advantage, that it admits of continued pieces or paintings of intire compartments without any visible joining.

Some make the ground of *plaster of Paris*, others of free-stone. If it be of *plaster of Paris*, they spread it in a wooden frame, of the length and breadth of the work intended, and in thickness about an inch and a half.

This frame is so contriv'd, that the tenons being only join'd to the mortisses by single pins, they may be taken asunder, and the frame be dismounted, when the plaster is dry.

The frame is covered on one side with a strong linnen cloth, nail'd all round, which being plac'd horizontally with the linnen at the bottom, is fill'd with plaster pass'd through a wide sieve.

When the plaster is half dry, the frame is set up perpendicularly, and left 'till it is quite dry; then it is taken out, by taking the frame to pieces.

In this *Mosaic* the ground is the most important part.

Now in order to the preparation of this sifted *Gypsum*, which is to be apply'd on this ground, it is dissolv'd and boil'd in the best *English* glue, and mixt with the colour that it is to be of, then the whole is work'd up together in the usual consistence of plaster; and then is taken and spread on the ground 5 or 6 inches thick.

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This must be observ'd, that if the work be such, as that mouldings are requir'd, they are form'd with gouges and other instruments.

It is on this plaister thus coloured like marble or precious stone, and which is to serve as a ground to a work, either of *lapis*, *agate*, alabaster, or the like, that the design to be represented is drawn; having been first pounc'd or calqued.

To hollow or impress the design, they use the same instruments that sculptors do; the ground whereon they are to work, not being much less hard than the marble itself.

The cavities being thus made in the ground, are fill'd up with the same *gypsum* boil'd in glue, only differently colour'd, and thus are the different colours of the original represented.

In order that the necessary colours and tints may be ready at hand, the quantities of the *gypsum* are temper'd with the several colours in pots.

After the design has been thus fill'd and rendred visible, by half polishing it with brick and soft stone, they go over it again, cutting such plates as are either to be weaker, or more shadowed, and filling them with *gypsum*; which work they repeat, 'till all the colours being added one after the other, represent the original to the life.

When the work is finished, they scour it with soft stone, sand, and water; after that, with a pumice stone; and in the last place polish'd with a wooden mullet and emery.

Then *lastly*, they give it a lustre, by smearing it over with oil, and rubbing it a long time with the palm of the hand, which gives it a lustre, no ways inferior to that of natural marble.

If you would only make a variegated table, or other work, of several colours, without *Mosaic* figures, the process is somewhat different.

Then you are to prepare colours separately in bowls, as many as nature shews in the marble to be imitated; and after you have incorporated them with *gypsum* and glue-water, take a trowel full of each, and dispose them in a trough, without any order, then without mingling them, and only by cutting or crossing the *gypsum* of each trowel, once with each of the rest, they give them that beautiful confusion, which renders natural marble valuable. Of these you may make tables, or lay them in a mould according to the work to be done.

### To MOULD off FIGURES in PASTE.

Take the crumb of a new-drawn white loaf, mould it 'till it becomes as close as wax, and very pliable; then beat it and roll it with a rolling-pin, as fine and as far as it will go; then print it on the moulds, and when it has taken the suitable figure you desire, dry it in a stove, and it will be very hard; and to pre-

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serve it from vermine, you may mix a little powder of a loe with it.

*To MOULD small figures of jasper colour.*

Oil your moulds with a fine pencil, and diversify them with such colours as you please with *gum tragacanth*; if they spread or run, put a little of the gall of an ox, for the thicker it is the harder it will be; then mould your paste of the colour of *jasper*, or the like, put it in to fill the mould, tie it with a wire, and take it out; repair and varnish it, and set it to harden.

*The manner of preparing or making CONCAVE MOULDS.*

To make a *mould* to cast them in,

Take clay, dry it well, reduce it to powder, and sift it; mix it up with water, then strain and filtre it; then work it up with horse-dung and hair shred small, till the mass is sufficiently tough; to which (if you please) may be added charcoal-dust or brick-dust well sifted; then prepare two coarse moulds of a gritty stone, the one concave, and the other convex, grind them one on another with wet sand between, till such time as the one perfectly fits the other. By this means, a perfect spherical figure is acquired.

This being done, extend the mass prepared before on a table, by means of a wooden roller, till it be of a thickness proper for the *mirrour*; then strew it with brick-dust, to prevent its sticking, and lay it over the convex mould, and so you will obtain the form of the *mirrour*.

When this is dry, cover it with another lay of the same mass; and when it is dry, take off each cover or segment of the hollow sphere made of clay, and lay aside the innermost of the two, and anoint the stone mould with grease prepared from chalk and milk, and put the outward cover over it again.

Lastly, cover the joining with the same clay of which the cover is formed, and bind the whole mould together with iron wire, having cut two holes through the cover, the one for pouring in the melted matter of the *mirrour*, and the other for the air to escape out at, to prevent the *mirrour* from being spoiled with bubbles.

**MOUTH** [*to paint in miniature.*] Do it with *vermilion* mixed with *white*, and finish with *carmine*, which is to be softened like the other parts of the face, &c. and if the *carmine* does not prove dark enough for the purpose, mix *bistre* with it: this is to be understood of the corners between the lips, and particularly for some dark open mouths.

**M. R.** Signifies *Mark Ravennate*, or *Ravignano*, i. e. *Mark of Ravenna*, scholar to *Mark Anthony Raimondi*.

**M + S** Signifies *Martin de Secu*, or *Schanio*, called by some *Bonmartine*, and *Albert Durer's* master.

MUSES,



# M U S

MUSES, they are reckoned nine in number, viz. *Calliope*, *Clio*, *Erato*, *Thalia*, *Euterpe*, *Melpomene*, *Terpsichore*, *Polyhymnia*, and *Urania*.

They are called Muses (as *Eusebius* writes) of *παρά τῃ μυσῖν* i. e. to instruct, because they teach the most honest and laudable disciplines.

*Calliope*, [of *Καλὸς* good, and *ὦψ* voice,] is represented in painting as a beautiful goddess, crowned with a coronet of gold; upon her left hand, garlands of bays in store for the reward of poets; and in her right hand three books, upon which are written *Homerus*, *Virgilius*, *Ovidius*.

*Clio*, her name is taken from praise and glory, [of *Κλείω*, gr. to celebrate] one of the nine *musēs*, taken for heroic poetry, is represented as a graceful matron, crowned with a coronet of bays, holding in her right hand a trumpet, and in her left a Book, upon which may be written *Historia*.

*Erato*, is so called from *Ἔρως* love, or *ἔρω*. gr. to love] one of the nine *musēs*, fabled to be the president of lovers and amorous persons; she is represented as a woman of a sweet and comely visage, her temples adorned with myrtles and roses, bearing an heart with an ivory key, *Cupid* standing by her side winged, his bow and quiver at his back, and holding a lighted torch.

*Thalia*, [of *τῇ θάλλειν*, gr. to be green, or flourish] one of the nine *musēs*, supposed to be the inventress of geometry and husbandry, is represented as a lady of a smiling countenance, and upon her temples a coronet of ivy, clad in a mantle of carnation, embroidered with silver twist, and golden spangles, holding in her left hand a visard; the ivy indicates, that she is mistress of comical poetry.

*Euterpe*, [is so called of *εὖ* well, and *τέρπειν* to give delight,] supposed to be the inventress and president of the mathematical sciences, &c. is represented as a damsel of a chearful countenance, crowned with a garland of flowers, holding in each hand sundry wind instruments.

*Melpomene*, [of *μέλπομαι*, gr. to sing,] one of the nine *musēs*, to whom the poets ascribe the invention of tragedy, is represented like a virago, with a grave and majestic countenance, her head adorned with pearls, diamonds, and rubies; holding in her left hand sceptres with crowns upon them; other crowns and sceptres lying at her feet, holding in her right hand a naked poinard, clad in a mantle of changeable crimson. Her gravity befits tragick poetry.

*Terpsichore*, [of *τέρψις* delectation, and *χορεία*, gr. a dance] one of the nine *musēs*, to whom is attributed the invention of dancing and balls, is represented as a beautiful woman of a chearful



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cheerful countenance, playing upon some instrument, having upon her head a coronet of feathers of various colours; but chiefly green; in token of the victory which the *Muses* obtained over the *Syrens*, &c. by singing.

*Polyhymnia* [of *πλὺς* and *ῥῆμος* a hymn] one of the nine *muses*, supposed to be the president of hymns, songs, and musick; her name denotes *memory*, to which rhetoricians are beholden; is represented as a beautiful woman cloathed in white, her hair dishevelled, of an orient yellow, upon her head a garland of the choicest jewels, intermixed with flowers, and in her left hand a book, upon which may be written *suadere*.

*Urania*, [of *οὐρανος*, gr. heaven] one of the nine *muses*, to whom is attributed the invention of astronomy, is represented as a beautiful lady, cloathed in a robe of azure, crowned with a coronet of bright stars, holding in her right hand a celestial globe, and in her left a terrestrial one; her name denotes heavenly.

*To dye stuff a MUSK colour.*

For every pound of wool allow two ounces of *alum*, two ounces of *copperas*, and two ounces of *tartar*, two ounces of *brown wood*, and two ounces of *madder*, to finish it.

Take again of *brown wood*, *madder*, and *copperas*, of each two ounces.

*Another for a piece of rash.*

Take one pound of *yellow wood*, one pound of *vitriol*, and half a pound of *galls*, and stir the stuff in it as usual.

GIROLAMO MUTIANO *da BRESCIA*, born in the year 1528, scholar of *Romanini*, studied *Titian* and *Tad Zuccherò*, lived at *Rome*, excelled in history and landscape, died in the year 1590, aged 62 years.

*Daniel MYTENS* was a *Dutch* portrait-painter in the time of King *James* and King *Charles I.* he painted the pictures of those two Kings.

Some of his pictures have been taken for *Van Dyck's*, whose manner he imitated. His head is also to be seen among those of that great master, who painted his picture.

He had a pension from King *Charles I.* being his majesty's principal painter; and upon *Van Dyck's* arrival in *England*, tho' he lost his place, yet his pension was continued to his death.

M. Z. signifies *Martin Zinkius*, i. e. *Zaringeri*, 1500.

## N.

**N**ADAT has marked his plates with a mole or a want-trap.

NAIADES [so called of *ναῖα*, gr. to flow] are the nymphs of the floods, and are represented as beautiful damsels, with hair

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hair transparent as crystal, their arms and legs naked, crowned with garlands of water cresses, with red leaves; their actions are pouring water out of urns, &c.

NAPEÆA, are nymphs of the mountains [so called of *Ναπὸς*, the top of an hill, or woody valley,] they are represented as damsels with a sweet and gracious aspect, clad in green mantles, girded about the waist, their heads adorned with garlands of honey-suckles, wild roses, thyme, and the like, either dancing in a ring, making garlands, or gathering flowers.

To *paint* the NARCISSUS; for all these flowers of the yellow sort, single or double, first lay on *masticot*, then *gamboge*, and finish it by adding a little *umber* and *bistre*; but the cup or bell in the middle are to be excepted, which are to be done with *orpiment* and *gall-stone*, and edged with *vermilion* and *carmine*.

As for the white *Narcissus*, cover them with white, and shade with black and white; except the cup or bell, which do with *masticot* and *gamboge*.

Let the green be *sea-green*, shaded with *iris*.

N. B. stands for *Nicholas de Bruyn*.

N. B. L. F. stands for *Nicholas Beatrici Lotharingius fecit*.

N. C. F. stands for *Nicholas Chapron, a Frenchman, fecit*. anno 1649 he engraved *Raphael's* galleries, painted in the *Vatican*.

NEALING is a term used for the preparing several matters, by heating or baking them in an oven, or the like. See ANNEALING.

*Nealing of Glass* is the baking of glass, to dry, harden, and give it the due consistence, after it has been blown and fashioned into proper works.

This is usually performed in a kind of tower called a *leer*, built over the melting-furnace in a glass-house.

*Nealing of steel* is the heating it in the fire to a blood-red heat; and then taking it out, and letting it cool gently of itself.

**N**or **A** PETER VAN NELPE, an engraver of all subjects used this mark.

NEMESIS, according to *Pausanias* and *Ammianus Marcellinus*, was held to be the goddess of punishments, who chastises the offences and crimes of malefactors with pains and torments, according to their demerits and sins; and rewards the virtuous with honours and dignities: she is said to be the daughter of *Iustitia*, (who dwells and inhabits very secretly within the house of eternity, recording the offences of the wicked) and a most severe and cruel punisher of arrogance and vain-glory.

*Macrobius* relates, that *Nemesis* was adored among the *Ægyptians* (under the name of *Rhamnusia*) as the revenger and chief enemy of pride, insolence, and haughtiness; and that she had a most

most stately and magnificent statue of marble erected, and dedicated to her.

He describes her with wings on her shoulders, and the rudder of a ship hard by her side; she herself standing upright upon a round wheel, holding in her right hand a golden ball, and in her left a whip. She is also often painted holding the bridle of an horse in one hand, and a staff in the other.

*Aulus Gellius* tells us, that *Chrysippus* describes her like a young virgin of a beautiful and modest countenance, with her eyes prying round about her; upon which account the ancients called her the *all-discerning lady*.

NEPTUNE was depicted by the ancients naked, with several countenances, sometimes mild and pleasant, at other times lowring and sad, and at other times with a mad and furious aspect; standing upright in the hollowness of a great sea-shell, holding in his hand a silver trident or forked mace; drawn by two monstrous horses, which from the middle downwards have the shape of fishes.

The variety of aspects is given him from the sea, because that at certain times sheweth itself so, and the trident represents the three gulphs of the *Mediterranean* sea.

Sometimes he is represented with a thin vail, hanging over one of his shoulders, of a *cerulean* or blueish colour.

*Lucian* describes him with very long hair, hanging over his shoulders, of a very dark colour.

*Martianus* describes him of a greenish complexion, wearing a white crown: alluding thereby to the spume and froth of the sea.

He is also painted with long hoary hair, clad in a mantle of blue, or sea-green, trimmed with silver, riding in a chariot of a blue colour, or on a dolphin of a brown black colour, holding in his hand a silver trident.

*Plato* describes him in a sumptuous chariot, drawn by sea-horses galloping, holding in one hand the reins of a bridle, in the other a whip.

*Servius* and others affirm, that all the gods of the sea were for the most part drawn in the shape of old men, with white and hoary hairs, proceeding from the froth or spume of the sea.

NIGHT (the mother of sleep and death) is represented by the ancients in the form of an old woman, of a sad countenance, having two large wings on her shoulders, coal black and spread abroad, as if she seemed to offer at a flight, and drawn in a chariot with wheels of *ebony*, and clothed in an upper garment of a deep black, spotted all over with silver spots, like stars.

NITRE

## N U T

**NITRE** is a sort of salt, thus called by the *ancients*; but by the *moderns* more usually salt-petre.

Some authors say, that *nitre* was so called of *Nitria*, a Province of *Ægypt*, where it was found in great abundance; they add too, that their *nitre* was of divers colours, *viz.* *white*, *red*, and *livid*; that some of it was cavernous like a sponge; others close and compact, others transparent like glass, and others scaly.

Naturalists are not agreed whether our *salt-petre* be the *nitre* of the ancients.

Most authors are of opinion that the ancient *nitre* was a mineral or fossil; whereas our *salt-petre* is artificial. *Serapion* says, that their mines of *nitre* were like those of common salt, and that it was formed out of running water, congealed in its progress into a sort of stone; and that their *nitre* was of four kinds, distinguished by the names of the countreys from whence it came, *viz.* *Armenian*, *Roman*, *African*, called *Aphronitron*, and the *Egyptian*.

N. M. D. signifies *Nicholas Manuel de Berna*, 1518.

**NOVEMBER** is described [in *Painting*, &c.] in a robe of changeable green and black; wearing on his head a garland of olives, together with the fruit on, holding in his right hand *Sagittarius*, and in his left bunches of parsnips and turnips.

**NUDITIES** [in *painting and sculpture*] are those parts of a human figure which are not covered with any drapery: or those parts where the carnation appears.

*To dye cloth or stuff a NUTMEG colour.*

Boil three pound of *alum* and half a pound of *tartar* for two hours, then take out the stuff and let it cool, and then add one pound and a half of *visel-wood*, or yellow flowers, three pounds of madder, and one pound of *galls*; put them all together into the kettle, and boil them for an hour and a half, and wind the stuff very close upon the roller; and if it be red enough, take it out and cool it; then put in two pounds of *copperas*, and if you can dissolve it with warm water, you may add a little more, then put in the cloth, letting it continue till it is enough, then rinse it out as usual.

*Another of the same.*

Put two or three quarts of walnut-shells, or walnut-roots into a copper, make it boil, and then put in the stuffs and rollers; and after a convenient time take them out and cool them, and make the ingredients boil again; then put in the cloth again, and let it boil for half an hour; then take it out and cool it, and add to the liquor three pounds of *madder*, and one pound of *galls*, putting them in together with the stuffs, let them boil for an hour, then take out the cloth and cool it; then put into the kettle two pounds of *copperas*, stir it well about, and put the

## O A R

the cloth into the copper again, look well after the fire, and keep stirring the stuff about, till the colour is deep enough, then rinse it out, &c.

### *A Nutmeg or cinnamon colour.*

Boil the stuff, with two pound of *alum*, and half a pound of *tartar*, and some sharp lye, for an hour; then pour off the water and put fresh into the kettle, and make the *flota* of three pounds of *madder*, a sufficient quantity of tartar-ashes, three pound of alder-bark; boil them together, and dye the cloth for an hour.

Some dye it pale; but if you would have it deeper, add two or three pounds of *copperas*, and the cloth will be of a very good *nutmeg* colour.

### *Another.*

First boil *alum* and tartar, as for the *red-dye*, then half *madder* it, and add to the madder a quarter of a pound of galls to every fifteen yards of stuffs.

You must take care it be not at most above half dyed red; and after that pass it through the *copperas* till it is dark enough, then rinse it, and after that pass it through the *yellow dye*, and it will be of a beautiful nutmeg colour.

MARIO NUZZI *di FIORI*, born in the year 1599, scholar to his uncle *Tomaso Salmi*, lived at *Rome*, excelled in flowers, died in the year 72, aged 73 years.

NYMPHS [are so called of *νύμφη*, gr. a bride] and is nothing else but an allegory taken from the vegetative humidity which gives life to trees, herbs, plants and flowers, by which they grow and increase.

They are feigned to be the daughters of *Oceanus*, i. e. the Ocean, the mother of the floods, the nurses of *Bacchus*, and Goddesses of the fields, who have the protection and charge of the mountains, herbs, woods, meadows, rivers, trees, and generally of the whole life of man.

NYMPHÆ DIANÆ, *Diana's nymphs*, are represented clothed in white linnen, to denote their virginity, and their garments girt about them so as to express their hability and readiness for hunting; their arms and shoulders naked, holding in their hands bows, and quivers on their backs.

## O.

O A R } is the mineral glebe, or earth dug out of mines  
O ORE } to be purified, and the metalline parts procured,  
and separated from the same.

The Ore is frequently called the *mineral*, and among the ancients *marcasite*; though the moderns affix another idea to that name.

OBE-

## O F F

**OBEDIENCE** is represented in painting, &c. by a pious, modest virgin, submitting to a yoke, with the inscription **SUAVE** on it.

The yoke and cross import the difficulties that accompany this virtue, as **SUAVE** does the pleasures resulting from the practice when it is spontaneous.

**OBLIGATION** is represented in painting, &c. by an armed man with two heads and four hands, to demonstrate that a man obliged acts two parts, *viz.* to take care of himself, and to satisfy another; the hands and heads signify the dividing the thoughts and operations.

**OBSCURA CAMERA**, see **CAMERA**.

**OBSCURA CLARO**, see **CLARA**.

**OBSTINACY** is represented in painting, &c. as a woman clad all in black, her head surrounded with a cloud, holding an ass's head with both her hands.

*Black* denotes obstinacy, because it will take no other colour, so an opinionative man will never be beat out of his error; the clouds denote the short-sight of the obstinate, that makes them so stiff that they will look no farther; the ass shews that gross ignorance is the mother of it.

**OCEANUS**, the father of all the sea-gods, was represented with the face of an old man, and a long white beard, drawn on a glorious chariot, accompanied and attended with a great company of nymphs.

**OCTOBER** is represented in painting in a garment of the colour of decaying flowers and leaves, and upon his head a garland of oak-leaves with the acorns; holding in his right hand a scorpion, in his left a basket of services, medlars, and chesnuts.

**MAURO ODDI**, an engraver and painter of *Parma*, used this mark.

**OECONOMY** is represented in painting and sculpture, by a venerable dame, crowned with olive, a pair of compasses in her left hand, and a small wand in her right, and a rudder of a ship by her side.

The stick denotes the rule a man has over his house, the rudder the care a father ought to have over his children, the olive garland the pains he ought to take in maintaining peace in his family, the compasses prudence and moderation.

**OFFENCE** is represented in painting, &c. by a brutish woman, her clothes rust coloured, with tongues, presenting a piece at two dogs going to worry a hedgehog.

The rust shews offence, the tongues that she offends in words and deeds, the dogs and hedgehog, that those that do hurt to others are hurt themselves.

*As*

# O I L

*As to OILS,* the best that can be us'd in painting are *oil of nuts* and *linseed-oil*.

*Oil of spike*, which is made of lavender-flowers, serves to make the colours run better, and renders the touching the picture over again the more easy; it also takes off the glittering of a picture, and is proper to do the same by the *filth*, and *clean* it: but the painter must have a care it does not take off the colour too.

*Oil of Turpentine*, which is drawn from *rosin*, is good to touch a picture over again with; but especially to mix with *ultramarine* and *enamels*; because it helps to spread them, and evaporates immediately. When the artist would make use of it, 'tis not necessary, he should make use much of other oil, which will only turn the colour yellow.

*Oil of nuts*, is us'd by painters boil'd up with the scum of *lead*, in which silver has been melted by a quick and great fire. To this is added an onion whole and peeled, which is taken out after it has boil'd. This takes away from the oil its greasy quality.

*Oil of nuts*, is also boil'd with powder of *azure* and *enamel*, which being boil'd, is let to stand a little, and then the top taken off. This is us'd to temper *white* and the other *colours*, which the painters would have be kept clean.

FAT OIL; put linseed-oil into leaden-vessels, made in the form of dripping-pans, so much as to be an inch deep: expose them to the sun for six months, till it becomes as thick as *turpentine*: the longer it stands, the fatter it will be, and give to gold a greater gloss. If it is almost as thick as butter, so as you may in a manner cut it with a knife, it is excellent, and ought to be carefully kept for use.

## To make DRYING OIL.

Mix a quart of *linseed-oil*, with three ounces of litharge of gold, and boil them for a quarter of an hour; but if you would have it more drying, boil it a little longer. But beware of boiling it to thick, so as not to be fit for use.

2. Or thus. Take red-lead and umber in fine powder, half an ounce, *linseed-oil* two pound, boil all as before; let it stand for two days, and it will have a skin over it, then it is fit for use.

## Oil of Turpentine

Is us'd to dissolve the colours and make them spread the better, and to make the work dry the sooner.

*An experiment relating to oil-colours, of great use to travellers of some kinds; to the chief officers of camps and armies, to seamen and such like.*

This



## OIL

This experiment is no other than a discovery of the way and mystery of making oil-cloth, now used for hat-cases, and that is this; take of drying oil, set it on the fire and dissolve it in some good rosin, or (which is better, but dearer, gum-lack) and let the quantity be such, as may make the oil thick as a balsam, for it must be so thin as to run about if spread upon a cloth.

When the rosin or gums are dissolved, you may either work it of itself, or add to it some colour, as verdigrease for a green, or umber for a hair colour, or indico and white for a light blue.

This varnish, if spread on canvas, or any other linnen-cloth, so that the cloth be fully drenched and intirely glazed over with it, and suffer'd to dry thoroughly, is impenetrable for all manner of wet; and if carriers and such kind of persons that are necessitated to travel in all manner of weathers, had but little light canvas cloaks made for them of such cloth, and hats covered on the outside with the same, these cloaks and hats would secure them from wet as well as if they remain'd still in their own houses; for as I said before, no wet will penetrate through it: four and twenty hours rain would make no more impression upon it, than if it had never rain'd.

The officers tents in an army or camp, if cover'd over with this varnish'd cloth on the top, would preserve them as securely from all wet as the best houses, and be as warm and dry; neither will there follow any great inconvenience in de-camping: for cloth so varnish'd is almost as pliable as the naked cloth, and not very much more weighty, especially if the varnish be laid on plain, without any colour mixt with it; for that is both lighter and more pliable.

The same advantages may seamen reap by it, or any other persons that must necessarily attend in storms and rain.

A sheep-skin boot well liquored with this varnish after the boot is made, and so thoroughly done over as to lie with a gloss on the outside, shall endure more wet than the best neat's-leather boot, being also much more pliable, easy and light; the same may be said of shoes in great part.

The great reason why the oil-hat-case has not been more often in use, is by reason of the difficulty required to form it into garments; and then the very hat-cases themselves do let water in at the seams: but this varnish being laid on in the seams after the garments are made, does so intirely secure every part, as there's no possibility or place for the wet's admittance.

The same may be of advantage to abundance of other humane necessities, too long here to enumerate; and for securing any kind of timber-work, it equals painting with colours  
in

## O I L

in oil, and much more easy to attain; for linseed-oil and rosin are much more easily melted together by boiling, than colours can any ways be ground; and being of the consistence of a balsam, works delicately with a brush, and of itself, without the addition of colours, bears a body sufficient to secure all manner of timber work-equal to most oil colours.

In the working of it there's no great skill required, if you can but use a painter's brush; only let the matter you lay it on be thoroughly drench'd, that the outside may be glazed with it: if you desire a colour on the outside, you need only grind a colour with the last varnish you lay on.

**PAINTING in OIL.** The ancients, as is said elsewhere, knew nothing of the art of painting in *oil*; but it was found out and practis'd by a *Flemish* painter in the fourteenth century.

It may be truly said, that *painting* then receiv'd a very great improvement, and a wonderful conveniency; for by this means the colours of a picture keep a long while; and a lustre and union are added to them of which the antients were ignorant, whatever varnish they made use of to spread over their painting; and yet all this secret that lay hid so long, consists in nothing but in grinding the *colours* with *oil of nuts*, or *linseed-oil*.

'Tis true this sort of work is very different from *Fresco* and *Distemper*; for the oil not drying so soon, the work must be touch'd over several times. But then on the other hand the painter has the advantage of more time to finish his picture, and touch over again all the parts of the figures, which he that works in *Distemper* and *Fresco* has not.

The oil also gives the work a greater force, because the black becomes more *black*, when 'tis tempered with oil, than when 'tis tempered with water.

All the *colours* run better together, are more soft, more delicate and more agreeable, there being an union and tenderness in this *manner*, which is not in any other.

One may paint in oil against walls, on wood, on cloth, on stones, and all sorts of metal.

The thing on which the painter intends to paint must in the first place be prepared by a *primer*, as the artists call it; which seems to make the ground, and renders the field very equal and smooth.

If he is to paint against a wall, when it is very dry, he must lay on two or three *layers* of boiling hot oil, and that as often as he thinks requisite, even till he perceives the plaister to be greasy, and will imbibe no more oil.

He then takes *white-chalk*, *red-oaker* and *other earths*, and grinds them to a consistence, of which he lays a layer on the wall;

wall; when that is dry, he designs his subject, and afterwards paints upon it, mixing a little varnish among his *colours*, that he may not be oblig'd to varnish them when painted.

Some prepare the wall after another manner to dry it the more, that the moisture may not make the *colours* scale off; as it often happens by the *oil's* opposing it, and hindring its coming out; to prevent this, they make a plaister of lime and marble dust, or a cement of pounded tiles, which they beat with a trowel to fine it, and then lay on the linseed-oil with a great brush.

After this they prepare a composition of *Greek pitch*, *mastich* and *varnish*, which they boil together in an earthen pot, and then spread it over the wall with a brush, and chafe it in with a hot trowel, to extend and smooth it the better; afterwards they lay on chalk, red-oaker, &c. as above-mentioned, before they design any thing.

Some have still another way, they make a plaister of *lime-mortar* with a cement of *tile* and *sand*, and when that is dry, they make another of *lime* and *cement* well sifted, and dross of iron, as much of the one as of the other; all which being well pounded and incorporated together with whites of eggs and linseed-oil, they make the finest plaisters in the world.

But you must not fail to take care, not to leave the *plaister*, while it is fresh laid on, nor till well spread all over with the trowel, and smooth every where; for otherwise it will cleave in several places.

When it is dry, they lay on the colours as before mentioned.

When the *painter* would paint upon wood, he first brushes it very well with a brush, and then lays on a *layer* of *white*, tempered with *paste*, before he covers it with oil. But now cloth is most made use of, especially for large *pictures*, by reason of their more easy carriage from one place to another than wood, which is heavy, and besides apt to crack.

Painters generally chuse *ticking* or the smoothest cloth they can get; and when 'tis well stretch'd upon a frame, they lay on a *layer* of *paste-water*, and then rub it over with a pumice-stone to take off the knots.

The *paste-water* serves to smooth down all the little threads in the cloath and fill the little holes, that the *colours* may not pass over them.

When the cloth is dry, they lay on a colour that will not kill the other colours, as *red-oaker*, which is a natural earth of substance, and with which they sometimes mix a little white-lead, that it may dry the sooner.

## O I L

This colour is first ground with *nut* or *linseed-oil*, and to lay it on of what thickness they please, they have a great knife for that purpose.

When it is dry, they rub it over again with a *pumice-stone* to smooth it; then if they please, they lay another *layer* compounded of *white-lead*, and a little of the *black* of *coal*, to make the ground *greyish*; and in both ways they put on as little colour as they can, that the cloath may not break, and the colours, that are to be laid on upon it, may keep the better.

If the primed cloath is not thus at first oiled, but the painter falls to *painting* at once, the colours will look better and remain more beautiful.

In some pieces of *Titian* and *Paulo Veronese*, 'tis observ'd that their first lay was of *distemper*, on which they afterwards painted with oil colours; by this means their works look'd the more lively and fresh: for the *distemper* attracted and imbib'd the oil that was in the colours, and was the cause that they remain'd the more beautiful, the oil taking off a great deal of their vivacity.

For which reason those who would have their pieces keep fresh, make use of as little oil as they can, and keep their colours the firmer, by mixing with them a little *oil of spike*, which soon evaporates, but serves to make them run the better, and renders them more pliable in working.

Another cause of colours losing their beauty, is when the painter works them too much in mixing them; for being jumbled together, they change and corrupt one another, and take a way their vivacity: wherefore he must be careful to use them properly, and lay the colours each in its place, without mingling them too much with the pencil or brush; also not to temper adverse colours together, as blacks with others; particularly *smoak-blacks*; but to use them apart as much as possible.

And when he would give the more force to his work, he should stay till it is dry, to touch it over again with colours that will not damnify the others.

It is a considerable thing towards the preservation of the beauty of their pictures: for there have been some which have been much upon the easel, and yet the colours have not been lasting, because those who us'd them, work'd and jumbled them too much together with the brush and pencil, thro' too much fire.

Those who paint with judgment, lay them on with less precipitation, put them thicker, cover and recover their carnations several times, which the painters call *well-kneading*.

## O I L

As for painting the cloth at first with a lay of *distemper*; 'tis true that is not often done, because it may then scale, and will not roll up but with difficulty: for which reason *painters* have been contented to put on a lay of colours in oil; but when the cloth is good and very fine, the less colour that is put on it in priming it is the better, and the painter must always be careful that his oil and colours be good.

When a painter is to work on *metal*, marble, or any other stone, he need only lay on a thin *layer* of colours before he designs any thing, and not at all on the stones where he would have the ground appear, as on marble when it is of an extraordinary colour.

All the colours us'd in *Fresco* are good in oil, except *lime-white* and marble dust; but what follows may be made use of.

*White-lead*, taken from common lead that has been buried. After it has lain in the ground several years, scales come upon the lead, which changes colour and turns to a beautiful white: tho' this white subsists in painting, yet it has a very bad quality; but the *oil* corrects it by grinding it on a stone.

*Ceruss*, is also the rust of lead, but fouler.

*Masticot*, yellow and white, is made of lead calcinated.

*Red-arsenick*, is us'd with calcinating and without: to calcine it, it is put into an iron box, or in a pot well stop'd: but few people calcinate it, or indeed use it; because the vapour is mortal, and 'tis very dangerous to make use of it.

*Red-lead*, taken out of lead-mines, is not much us'd, because it is an enemy to other colours.

*Vermilion*, taken out of silver mines, it being a mineral, does not keep its colour in the air.

*Lake*, which is made of *cochineal* or *Brazile* wood, or other woods, there being several kinds of it, does not keep in the air.

*Ash-blues* and *ash-greens*, are seldom made use of but in landships.

*Indico*, is also us'd in skies and draperies; when it is well us'd, it keeps beautiful a long time: too much oil must not be mixt with it; lay it a little brown, because it is apt to change; it is made use of in painting with success, it being good for greens.

The *Avignon* grain, which is tempered and boil'd; then the ashes of *vine-twigs* or *chalk* are thrown in, to give it a substance, as is done in lake, and after that it is all squeez'd thro' fine lawn.

*Smoke-black*, which is a bad colour; but easy to paint black draperies.

## O I L

*Bone-black* and burnt-ivory, which according to *Pliny* was invented by *Apelles*.

*Verdegrease*, is the plague of all colours, and enough to spoil a whole picture, if the least part of it enters into the priming of the cloth; yet 'tis a beautiful and an agreeable colour.

### PAINTING in OIL, and the materials.

1. *Painting in oil*, is the same as that of *limning* before-mentioned, perform'd with colours made up or tempered with oil.

2. The materials us'd in this art, are chiefly seven; 1. *the easel*; 2. *pallet*; 3. *the straining-frame*; 4. *the primed-cloth*; 5. *pencils*; 6. *the stay*; 7. *colours*.

3. The *easel*, is a frame made of wood, (much resembling a ladder, with flat sides and full of holes, to put in two pins to set the straining-frame and cloth upon, either higher or lower at pleasure, being something broader at the bottom than at the top) on the backside of which is a stay; by which the easel may be set either the more sloping or more upright.

4. The *pallet*, is a thin piece of wood (either of pear or walnut-tree) about a foot in length, and ten inches in breadth, in almost an oval form, at the narrowest end of which is an hole, to put in the thumb of the left-hand, near which there is a notch cut, that the *pallet* may be held in the hand. *The use of this is to hold and temper the colours upon.*

5. The *straining-frame*, made of wood, on which the primed cloth, that is to be painted upon, is fastened with nails. These frames ought to be of several sizes, according to the size of the cloth.

6. The *primed cloth*, is that which is to be painted upon, and is to be prepar'd as follows;

*Take good canvas, and first smooth it over with a sleek-stone, size it over with good size and a little honey, and let it stand to dry; then lay it over once with whiting and size mix'd with a little honey, and the cloth is prepar'd: on this you may first draw the picture with a coal, and afterwards lay in the colours. Where by the way you may take notice, that the use of honey is to prevent it from cracking, peeling or breaking out.*

7. *Pencils* of all sizes, from a pin to the bigness of a finger, which are call'd by several names; as *Dutch quill fitch'd and pointed*; *goose quill fitch'd and pointed*; *swan quill fitch'd and pointed*; *jewelling pencils* and *bristle pencils*, some in quills, some in tin-cases, and some in sticks.

8. The *stay* or *molestick*, is a stick of *Brazile* wood, (or the like) in length about a yard, having a small ball of cotton at one end of it, fix'd hard in a piece of leather, about the size of a chesnut, which is to be held in the left-hand while you  
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are working, and laying the end which hath the leather ball, upon the cloth or frame, you may rest your right arm upon it.

9. The colours are in number seven, as has been said elsewhere, *viz. white, black, red, green, yellow, blue and brown.*

*Of which some may be tempered upon the pallet at first, some must be ground, and then tempered; and others must be burnt, ground, and lastly tempered.*

10. As for the size, for sizing the primed cloth;

*Boil glue well in fair water till it be dissolv'd, and it is made.*

11. To make the whitening for the ground of the cloth;

*Mix ground whitening with the size, and with it white the cloth or board, (being first made very smooth) and dry them, then do them over again a second or a third time. Afterwards scrape them smooth, and lay it over with white-lead tempered with oil.*

12. To keep the colours from skinning over;

*Oil colours, if they stand but a little time before they are us'd, will have a skin grow over them; which may be prevented by being put into a glass, and putting the glass three or four inches under water, and then they will never thin nor dry.*

13. To cleanse the grinding-stone and pencils;

*Grind carriers shavings upon the grinding-stone, if it be foul, and afterwards crumbs of bread; and they will fetch off all the filth.*

*And as for your pencils, dip them in oil of turpentine, and squeeze them between your fingers, and they will come very clean.*

*The colours in general, and their signification.*

1. The chief whites for painting in oil, white-lead, ceruss and spodium.

2. The chief blacks, are lamp-black, sea-coal-black, ivory-black, charcoal and Colen's earth.

3. The chief reds, are vermilion, cinnabar, lake, red-lead, Indian-red, ornotto.

4. The chief greens, are verdegrease, terra-vert, verditer.

5. The chief yellows, are pink, masticote, English-oker, spruce-oker and orpiment.

6. The chief blues, are blue bice, indico, ultramarine and smalt.

7. The chief browns, are Spanish-brown, and burnt spruce umber.

8. The following colours need not be ground at all, but only tempered with oil upon the pallet, *viz. lamp-black, verditer, bice, vermilion, orpiment, masticot, smalt, ultramarine.*

9. These colours following are to be burnt and ground in oil; *ceruss, oker, ivory, umber.*



## O I L

10. All the rest are to be ground with *linseed oil*, except *white-lead* when it is us'd for linnen, which then is to be ground with *walnut-oil*, because the *linseed-oil* will make it turn yellow.

*As to the nature and signification of COLOURS.*

*Black*, signifies wisdom, sobriety and mourning.

*Red*, signifies justice, vertue and defence.

*Flame-colour*, beauty and desire.

*Maidens-blush*, envy.

*Flesh-colour*, signifies lasciviousness.

*Carnation*, craft, subtilty and deceit.

*Green*, signifies hope.

*Grass-green*, youth, youthfulness and rejoicing.

*Yellow*, signifies jealousy.

*Perfect yellow*, joy, honour, and greatness of spirit.

*Lemon-colour*, also signifies jealousy.

*Gold-colour*, avarice.

*Straw-colour*, signifies plenty.

*Orange-tawney*, signifies pride, also integrity.

*Tawney*, signifies forsaken.

*Blue*, signifies true faith and continued affections.

*Azure*, signifies constancy.

*Violet-colour*, signifies a religious mind.

*Willow-colour*, signifies forsaken.

*Poppinjay-green*, wantonness.

*Purple*, signifies fortitude.

*White*, signifies death.

*Milk-white*, signifies innocency, purity, truth, integrity.

The *white*, *black*, *red* and *green*, are colours held as sacred in the church of *Rome*.

*White* is worn on the festivals of the *Virgin Mary*, saints, confessors and angels, to intimate their innocency.

*Red* on the solemnities of the apostles and martyrs of *Jesus Christ*.

*Black* in Lent, and other fasting-days.

*Green* is worn between the *Epiphany*, and *Septuagesima*, and between *Pentecost* and *Advent*.

*The fitting the colours for painting.*

1. Dispose the several colours upon the pallet, at convenient distances the one from the other, that they may not intermix: first lay on the *vermilion*, then the *lake*, then the *burnt oker*, then the *Indian-red*, *pink*, *umber*, *black* and *smalt* in their order. And lay the white next to your thumb, because that is us'd the oftneft; for all the shadows are to be lightened with it; and next to the white lay a stiff sort of *lake*; and then the pallet will be furnished with simple colours for a face.

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2. To temper these colours for various complexions, do as follows:

Take one dram of *white*, two drams of *vermilion*, of *lake* the same quantity, temper them together, and lay them aside for the deepest carnation of the face; to part of the aforesaid mixture, put a little more *white* for a light carnation; and to part of that put more *white* (which temper on the pallet) for the lightest colour of the face.

3. The faint shadows for a fair complexion.

Take *smalt* and a little *white* for the eyes; to part of that add a little *pink*, and temper by itself, for faint greenish shadows in the face.

4. The deep shadows for the face.

Take *cinnabar*, *lake*, *pink* and *black*, of each a sufficient quantity, and temper them together; if the shadows ought to be redder than what you have tempered before, add more *lake*; if yellower, add more *pink*; and if bluer or greyer, add more *black*; and then will the pallet be fitted with colours.

5. For a brown or swarthy complexion.

The single colours being laid on the pallet as before, and tempered to the *white lake* and *vermilion*, put a little *burnt oker* for a *tawney*; and for heightening, add some yellow oker, just enough to change the colour and no more; the faint and deep shadows are the same as are mentioned before.

6. For a *tawney* complexion, the colours are the same with the former; but the shadows are different, which must be made of *burnt oker* and *umber*, (which will scent well.) If the shadows be not yellow enough, add a little *pink* to it.

7. For a *black* complexion.

The dark shadows are the same as before; but for heightening, take *white*, *black*, *lake* and *burnt oker*, in tempering of which, put in the white by degrees, till you come to the lightest of all.

Where you are to observe, that the simple colours that were at first laid on the pallet and tempered, serve for shadows for all complexions; and that all deepening ought to be with *black*, *lake* and *pink* tempered together.

### Oil colours for LANDSKIP.

For a *light green*, use *pink* and *masticot*, heightened with *white*.

For a *sad green*, use *indico* and *pink*, heightened with *masticot*.

For *some trees*, use *lake*, *umber* and *white*; for others *charcoal* and *white*; for others, *umber*, *black* and *white*, with some *green*; and sometimes *lake* or *vermilion*, with other colours.

For *wood*, use *lake*, *umber* and *white*, mixing sometimes a little *green* withal.

## O I L

*As for wood colours*, they are compounded either of *umber* and *white*, *charcoal* and *white*, *sea-coal* and *white*, *umber*, *black* and *white*, or with some *green* added: to which you may add sometimes a little *lake* or *vermilion*, as in the barks of trees.

For a *red sky*, use *lake* and *white*; and for sun-beams or *yellow clouds* at sun-rising or setting, use *masticot* and *white*.

For an *azure sky*, which seems a-far off, use *oil-smalt* or *bice*, tempered with *linseed-oil*; but these must not be ground, for *smalt* or *bice* utterly lose their colour in grinding.

For a *night-sky*, or clouds in a storm, use *indico* deepned with *black*, and heightened with *white*.

For *fire*, where you would have it reddest, lay *red-lead* and *vermilion* tempered together; where it is *blue*, lay *oil-smalt* and *white-lead*; where it is *yellow*, take *masticot*, and work it over in certain places, where you would have it shine most, with *vermilion*.

### Of Colours for GARMENTS in the general.

For *black*, let the dead-colour be *lamp-black* and *verdegrease*, and when it is dry, go over it with *ivory-black*; but before the second going over, heighten it with *white*.

For a *sad red*, use *Indian-red*, heightened with *white*.

For a *light red*, use *vermilion*, and glaze it over with *lake*, and heighten it with *white*.

For a *scarlet*, use *vermilion*, and deepen it with *lake* or *Indian-red*.

For *blue*, use *indico* and *white*; first lay the *white*, and then the *indico* mix'd with *white*, then deepen it with *indico*, and when dry glaze it with *ultramarine*, which will never fade.

*Smalt* will turn *black*, and *bice* will turn *green*.

For *green*, use *bice* and *pink*, deepen it with *indico* and *pink*, and heighten it with *masticot*.

For a *sad green*, use *indico* and *pink*.

For a *light green*, mix *pink* and *masticot*.

For a *grass-green*, mix *verdegrease* and *pink*.

For a *bare-colour*, use *umber* and *white* for the ground; *umber* and *black* for the deeper shadows; *umber* and *English oker* for the meaner shadows; and *white* and *English oker* for the heightening.

For *yellow*, use *masticot*, *yellow-oker*, *umber*; lay *umber* in the darkest places; *oker* and *white* in the mean or middle place; and *masticot* and *white* in the lightest places.

For *orange-colour*, lay the lightest parts with *red-lead* and *white*, the deeper parts with *lake*; and if there be occasion, heighten it with *white*, and the mean parts with *red-lead* alone.

# O I L

## Of OIL colours for VELVET.

1. For *black velvet*, use *lamp-black* and *verdegrease* for the first ground; when that is dry, temper up *ivory-black* and *verdegrease*, and shadow with *white-lead* mix'd with *lamp-black*.

2. For *red velvet*, use *vermilion*, and shadow it with *Spanish brown*, and where you would have it darkest, shadow it with *sea-coal-black* and *Spanish brown*, tempered with the aforesaid colours; let it be dry, and then gloss it over with *lake*.

3. For a *crimson* or *carnation velvet*, use *vermilion*, with which mingle *white-lead* at pleasure.

4. For a *green velvet*, use *lamp-black* and *white-lead*, and having work'd it like a *russet velvet*, let it dry; then draw it over with *verdegrease* mix'd up with a little *pink*.

5. For a *sea-green velvet*, use *verdegrease* alone, and lay it over with *russet*.

6. For a *grass-green velvet*, put to it a little *masticot*, and shadow these greens with *russet*, which you should lay according to the deepness of the *green*.

7. For a *hair-colour velvet*, use ground *umber* alone, and where you would have it brightest, heighten it with some *white-lead* about the folds; either lighten or darken with *white-lead* and *umber*.

8. For *blue velvet*, use *smalt* tempered alone.

9. For *yellow velvet*, use *masticot* and *yellow oker*, and where you would have it darkest, shadow it with *umber*.

10. For *ash-colour velvet*, use *charcoal*, *black* and *white-lead*, and lighten with *white-lead*: a colour like to a dark *russet* will be an *ash-colour*.

11. For a *tawny coloured velvet*, use *Spanish-brown*, *white-lead* and *lamp-black*, with a little *verdegrease* for shadowing where need is; and when dry, gloss its over with *lake* and a little *red-lead*.

12. For *purple velvet*, use *smalt* and *lake*, of each a like quantity, temper them up (either light or deep, as you please) with *white-lead*.

Take notice that in painting *velvet*, you must at first work it somewhat sad, and afterwards give it a sudden brightness.

*To dye stuff, &c. of an OLIVE colour.*

This must be ordered as the *brimstone yellow*, after which prepare fuds of *galls* and *copperas* (but not strong) through which pass the stuffs two or three times, according as you would have the dye lighter or deeper, and it will produce an olive colour.

ISAAC OLIVER was a famous limner, who flourished about the latter end of the reign of queen *Elizabeth*. He was eminent both for history and face-painting, many pieces of which

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which were in the possession of the late Duke of *Norfolk*; and being a very good designer, his drawings were finished to a mighty perfection; some of them being admirable copys after *Parmeggiano*, &c. He received some light in that art from *Frederico Zuccherò*, who came into *England* in that reign. He was very neat and curious in his limnings, as may be seen by several history-peices of his in the queen's closet. He was likewise a very good oil-painter in little.

He died between fifty and sixty, in King *Charles I* time, and was buried in *Black-fryars*, where there was a monument set up for him, with his busto; all which has been destroyed by fire.

PETER OLIVER was son of the before-mention'd, who had instructed him in his art; he became exceeding eminent in miniature, insomuch that he out did his father in portraits. He drew King *James I*. Prince *Henry*, Prince *Charles*, and most of the court at that time. He lived to near sixty, and was buried in the same place with his father about the year 1664.

ONYX a precious stone, accounted a species of *Opal*.

Its colours are usually white and black, which appear as distinct as if laid on by art.

There are some brought from *Arabia* mix'd with a greyish hue; which after taking off one lay or row, shew another underneath of a different colour.

OPAL is a precious stone of various colours: in it are seen the red of the ruby, the purple of the amethyst, the green of the emerald; besides yellow, and some black and white.

When this stone is broke, most of these colours disappear; which is a sign that they only arise by reflection, from one or two of the principal ones.

Its form is always either round or oval; its prevailing colour white. The diversity of its colours makes it almost of equal value with the *sapphire* or *ruby*.

*Tavernier* affirms, that there are mines of *Opal* in *Turky*; other authors tell us, it is produc'd in *Bohemia*, *Hungary*, *Arabia*, *Egypt*.

*Pliny* among the ancients, and *Porta* and *Albertus* among the moderns, are very large upon the virtues of the *Opal*, the ancients call it *panderos*, from its promoting love and good-will.

Artificial OPAL. *M. Colepreff* gives us an account of the manner of counterfeiting *Opal*, as practis'd at *Haerlem* in *Holland*, and is as follows:

When the composition is melted, they take out some on the point of an iron rod; which being cool'd either in the air or water, is colourless and pellucid; but being put into the mouth  
of

## O P S

of the furnace by the same rod, and these turned by the hand for a little space, hath its little bodies so variously posited in various parts of the same piece, that the light falling on them, being variously modified thereby, represents the several colours, seen in the natural *Opal*.

He says the counterfeit *Opal* is very lively, and thinks it is only perform'd by degrees of heat, which produce the colours; and that the colours may be destroy'd and restor'd, according to the various motions of its particles by heat.

OPINION, says *Hippocrates*, resembles a young woman not altogether so fair and lovely as Truth; yet not deform'd, or ill-proportioned; being rather impudent, than modestly bold in her demeanour, with her hand stretched forth to take whatsoever is offered and presented to her.

OPINION, is represented [*in Painting, &c.*] by a woman in a genteel garb, neither handsome nor disfigured, but seems daring and bold, ready to fly in one's face, upon every thing she fancies is misrepresented; and therefore has wings on her hands and shoulders. Her face shews that there is no opinion but may be maintained and embraced, nor any so well grounded but may be disliked.

OPS } says *Martianus*, (the wife of *Saturn*) is repre-

TELLUS } sented as an old woman of a large body, and continually bringing forth children, with which she is encompassed or beset round, clad in a green vestment, with a veil over all her body, spotted with divers colours, and wrought with a vast number of knots, and set with all sorts of gems and metals.

She was also represented in the form of an *antient* woman, having her head encompass'd with ears of corn, holding in her hand a poppy-head; drawn in a chariot by two fierce and untamed dragons.

The *Earth*, is also call'd *Ceres*, which has been painted by many, holding torches, lights and firebrands in her hand. And sometimes in a long green mantle.

*Isidorus* relates, that this goddess was painted with a key in one of her hands, which intimates that the bowels of the earth are lock'd up in the winter-time by the cold; which are unlock'd again at the approach of spring and summer.

*Varron* (from *Boccace*) describes *Ops* or *Tellus* thus; she is, says he, crown'd with a crown, carv'd or engraven with castles and towers; clad in green raiment overshadowed with boughs: holding in one hand a sceptre, and in the other a ball or globe; and her chariot has four wheels, drawn by four lions.

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*By the crown, is signified the habitation of the earth; by the greenness and boughs, the encrease of the earth; by the sceptre, the kingdoms and government of the world; by the ball, the roundness of it; by the chariot, the continual motion, change and alteration of things; by the lions, the wisdom and strength of mankind, by which affairs are carried on and manag'd.*

### ORANGE COLOUR.

An orange-colour for washing prints is made by laying on a teint of *Gamboge*, and over that some *minium* or red-lead wash'd and rendred fine and fit for use; it not being fine enough to paint with, as it is bought at the shops; and besides, it will change or turn black, after a few weeks, if it be not refin'd; but if it be well prepar'd, will be very lasting and beautiful.

But this you may take notice of, that an ounce will not produce above 20 grains of a good colour, to stand the test of painters.

This colour may be mix'd with *gamboge*, upon a white *Dutch* tile, to render it of the teint you would have it, either softer or stronger; or the *gamboge* may be glaz'd over and strengthened with the tincture of *saffron*, which will make it glare into a strong *orange*. See *MINIUM*.

Some may think it strange, that as for orange colours I mention those deep sorts tending to purples: but I mention them as shades; and without which, the orange or red could not appear with any brightness.

### *To dye SILK an ORANGE colour.*

First, lay the white silk in alom-water, in the same manner as the yellow, then take the eighth part of a pound of *Orleans*, dissolve it in water for the space of one night, add to it one ounce of pot-ashes, boil it for half an hour, then add an ounce of beaten *turmerick*; stir it very well, let it stand a little while, and then put in the alomed silk, and let it remain there, one, two or three hours, according as you would have the colour, light or dark; rinse it in fine soap-suds, till 'tis perfectly clean, then beat and dry it.

ORDONNANCE } [*in painting*] is us'd for the disposition  
ORDINANCE    } of the parts of a painting, either with  
respect to the whole piece, or to the several parts; as the  
*groups, masses, contrasts, aspects, &c.*

*The doctrine of ORDONNANCE is compriz'd in the following rules.*

In the *Ordonnance*, there are three things to be regarded, *viz.* the *place* or *scene* where; the *distribution* how; and the *contrast*.

As



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As to the first, regard is to be had as to the *disposition* of things to serve as a ground-work; and to the *plan* and position of bodies: under the former of which, comes first *landskip*, whether an uninhabited place, where there is a full liberty of representing all the extravagancies of nature; or inhabited, where the signs of cultivation, &c. must be exhibited. See LANDSKIP.

2. The *building*, whether rustic, wherein the painter's fancy is at liberty: or *regular*, wherein the orders are to be nicely attended to.

3. The mixture of both; in which it is a maxim to compose in great pieces, and to make the ground-plot big enough; to neglect some little places, in order to bestow more on the whole mass; and to exhibit a view of the more considerable places with the more advantage; and to represent some agitation in all things that move.

As to the *plan* of bodies; they are either solid, which again are either so by nature, and must be proportioned to their places; or *artificial*, where regard must be had to the rules of *geometry*, *perspective*, *architecture*, &c.

Or the *bodies* move; and this they do, either by a voluntary motion, wherein great regard must be had to proportion them to their situation; and to strengthen them by the regarding equilibrium; or by some extraordinary power, as machines, &c. where the causes of their motions must appear.

Or they are things at a distance, in all which an even plane must still be propos'd, to find their precise situation, and settle their place by sudden breaks and distances, agreeable to perspective.

In placing the figures, regard is to be had,

1. To the *group*, which connects the subject and stays the sight.

In this the *knot* or *nodus* which binds the *group* is to be considered; and also the nearness of figures, which may be call'd the chain, in as much as it holds them together; that the *group* be sustain'd by something loose and distinct from it, and by the same join'd and continued to the other *groups*; and that the lights and shadows be so dispos'd, as that the effects of all the parts of the composition may be seen at once.

2. As to the *actions*, forc'd attitudes are to be avoided; and simple nature should be shown in her most advantageous postures.

The nudities ought not to be shewn in weak and lean figures; but rather you ought to seek for occasions to cover them. A special care ought to be taken, that in all human figures, the head  
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be plac'd in the middle between the shoulders; the trunk on the haunches, and the whole on the feet.

3. As to the *drapery*, this must be so adjusted, that it may appear real garments, and not stuffs thrown loosely on.

P.

**H**ENRY PAERT, was first disciple of *Barlow*, and afterwards of *Stone* the famous copier. He was brought up a scholar, and spent some of his time at one of our Universities. He painted under Mr. *Stone* for several years, but afterwards fell to face-painting by the life, yet his talent seemed to be for copying. He copied with great assiduity, the greatest part of the history-pieces of the royal collection in *England*; in several of which he had good success: what he seemed to want, was a warmth and beauty of colouring. He died in *London*, about the year 1697 or 1698.

**SIMPLE** *bodily* PAIN; this affection or passion produces proportionally the same motions as that which is acute or extreme; but not so strong.

The eye-brows do not approach and rise so much; the eye-balls appear fix'd on some object; the nostrils rise, but the wrinkles in the cheeks are less perceivable, the lips are further asunder towards the middle, and the mouth is half open.

**ACUTE** PAIN is an affection of the body, makes the eye-brows approach one another and rise towards the middle; the eye-balls are hid under the eye-brows, the nostrils rise and make a wrinkle in the cheeks, the mouth is half open and draws back. All the parts of the face are agitated in proportion to the violence of the pain, and all the motions of the visage will appear sharp.

**PAINTING** is the art of representing natural bodies, and giving them a kind of life by the turn of lines, and the degrees of colours.

Painting is said to have its rise among the *Egyptians*, in representing divers animals, &c. as hieroglyphicks. But the *Greeks*, who learn'd the first rudiments of them, carried it to a great degree of perfection.

The *Romans* had also considerable masters in this art in the latter times of their commonwealth, and those of their first emperors; but the inundation of the *Barbarians*, who ravag'd and destroy'd *Italy*, reduc'd painting again pretty near to its infant state.

But in *Italy* it return'd again to its antient honour; and *Cimabue* betaking himself to the pencil in the xvth century, translated the poor remains of the declining art, from a *Greek* painter or two, into his own country *Italy*.

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Some painters of *Florence* seconded him, the first of which was *Ghirlandaio*, master to *Michael Angelo*; *Pietro Perugino*, master to *Raphael Urbin*; and *Andrea Verocchio*, master to *Leonardo da Vinci*.

But these scholars far surpass'd their masters, and carried painting to a pitch, from which it has ever since been declining.

These advanc'd painting not only by their own noble works, but also by the number of scholars they train'd up, and the schools which they form'd.

*Michael Angelo* in particular, founded the *Florentine* school; and *Raphael Urbin* the *Roman*; and *Leonardo da Vinci* that of *Milan*.

To these must be added the school of *Lombardy*, which became very considerable much about the same time, under *Georgian* and *Titian*.

Besides these *Italian* masters, there were on this side the *Alps*, others who had no communication with those of *Italy*; as *Albert Durer* in *Germany*, *Hans Holben* in *Switzerland*, and *Lucas* in *Holland*. But *Italy*, and especially *Rome*, was the place where the art was practis'd with the greatest success, and which from time to time produc'd the greatest masters.

*Caraches*, succeeded to the school of *Raphael*, which has lasted in its scholars almost to the present time; wherein the *French* painters, encourag'd by the munificence of *Louis XIV.* seem almost to be in a condition, to vie with those of *Greece* or *Italy*.

In *Paris* there are two considerable bodies of painters; the one of the *royal academy of painting*, and the other the *community of masters in painting and sculpture*.

*M. Fresnoy* divides the art of *painting* into three principal parts; *invention*, *design* and *colouring*; to which a fourth is added by some, *viz. disposition*.

*M. Testling*, painter to *Louis XIV.* divides it something more accurately, into the *design* or *draught*, the *proportion*, the *expression*, the *clair obscure*, the *ordonnance*, and the *colouring*. See these articles.

Painting is of various kinds, according to the materials us'd; the matter upon which they are apply'd; and the manner of applying them.

As *Painting in oil*, in *Water-colours*, *Fresco*, &c.

As to the art of painting in oil, that was unknown to the *antients*, and was first discovered and put in practice by *John Van Eyck*, or *John of Bruges*; about the beginning of the *xivth* century. Till his time all the painters wrought in *Fresco*, or in *water-colours*.

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This invention was of the greatest advantage to the art, in that by this means the colours of a painting are preserved much longer and better; and receive a lustre and sweetness which could never be attain'd to by the antients; what varnish soever they made use of in covering their pieces.

The whole secret only consists in grinding the colours with nut-oil, or linseed-oil; but it must be own'd, that the manner of working is very different from that in *Fresco*; or in water; in that the oil does not dry near so fast: which gives the painter an opportunity of touching or re-touching all the parts of his figures, as often as he pleases; which in the other methods of painting is a thing impracticable.

And besides, the figures done in oil are capable of more force and boldness; in as much as the black becomes blacker, when ground with oil, than in water: besides that all the colours mixing better together, make the colour the sweeter, more delicate and agreeable, and give an union and tenderness to the whole work, inimitable in any of the other manners.

**PAINTING on walls**, when the wall is dry, they give it two or three washes with boiling oil; till the plaister remains quite greasy, and will not drink in any more. Upon this they lay drying colours, *viz.* white chalk, red-oker, or other chalks beaten pretty stiff.

When this couch or layer is indifferent dry, the subject or design is sketch'd out, which is afterwards painted over with the colours mix'd with a little varnish, to save the varnishing afterwards.

In order to fortify the wall the better against moisture, some cover it with a plaister of lime, marble-dust, or a cement made of beaten tiles soak'd with linseed-oil. And lastly, they cover the plaister over with a composition of *Greek* pitch, mastick and thick varnish boil'd together hot; and when this is dry, they lay on the colours as before. Others make the plaister with lime-mortar, tile, cement and sand; and after this is become thoroughly dry, they apply another of *lime, cement* and *machefer*, or *scum of iron*, all well beaten up together, and incorporated with whites of eggs and linseed-oil, which does indeed make an excellent couch or plaister, this being dry: they lay on the colours as before.

**PAINTING on wood**; they usually give their ground a couch, or lay of white temper'd with size; or they apply the oil above-mentioned: the rest as painting on walls.

**PAINTING on linen or canvas**, is done as follows: they stretch the canvas on a frame, and then give it a couch or lay of size; and when it is dry, they go over it with the pumice-stone, to smooth off the knots.

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By means of this size, the little threads and hair are all laid close on the cloth, and the little holes stopp'd up, so that no colour can pass through.

When the cloth is dry, they lay on oker, which is a natural earth, and bears a body; sometimes mixing a little white-lead with it, to make it dry the sooner. When it is dry, they go over with the pumice-stone to make it smooth.

After this, sometimes a second couch is apply'd, compos'd of white-lead, and a little charcoal-black, to render the ground of an ash-colour; but care is to be taken in each manner, to lay on as little colour as possible, that the cloth may not break, and that the colours when they come to be painted over may be preserv'd the better.

In some of the paintings of *Titian* and *Paolo Veronese*, we find they made their ground with water, and painted over it with oil; which contributed much to the vivacity and freshness of their works. For the ground, by imbibing the oil of the colours, leaves them the more beautiful; the oil itself, taking away a deal of their vivacity.

Therefore you should use as little oil as is possible, if you would have the colours keep fresh: for this reason some mix them up with oil of aspic, which evaporates immediately, yet serves to make them manageable with the pencil.

**PAINTING on stones or metals;** it is not necessary to lay them over with size, as on cloth, it is sufficient to add a slight couch of colours, before the design is drawn on it; nor is even this done on stones where you would have the ground appear, as in certain marbles of extraordinary colours.

All the colours which are us'd in *Fresco*, are good in oil, except white of lime and marble-dust

*As for the different ways of painting, in Distemper, Fresco, Water-colours, Oil, &c. See them in the proper places alphabetically.*

*To cleanse old PAINTING.*

Make a lye of the ashes of vine-branches, mix'd with fresh man's urine, dip a sponge in it and wipe it over, and it will much restore the fading, &c. or,

Take good *wood-ashes*, searce them, or else *smalt* or powder-blue, and with a sponge and fair water, gently wash the pictures you would cleanse, (taking great care of the shadows) when you have so done, dry them well with a clean cloth.

Then varnish it over again with some good varnish, but such as may be wash'd off again, if there be occasion.

As for the varnish, use either common varnish, (made with *gum-sandrach* dissolv'd in *linseed-oil*, by boiling) or glair of eggs, and with your pencil go over the picture once, twice, or more with it, according as there shall be occasion.

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If your painting be *wainscoting*, or any other joinery-work, you may use wood-ashes, and mixing them indifferent thick with the water, rub over the painting with a stiff bristle brush, as a shoe-brush, and scour, wash and dry it, and afterwards varnish it with common varnish.

But if your paintings are more curious, as figures of men, beasts, landskips, flowers, fruits, &c. then take smalt only, and with a sponge dipt in water, cleanse it gently, and afterwards wash it in fair-water, and having dry'd it well, varnish it, and it will very considerably recover the lustre of the pictures.

But this cleansing of paintings ought not to be done too often, (*viz.* not except they are very much soiled) because too frequent cleansings of this kind, will by degrees wear off part of the colours: therefore you should endeavour to preserve their beauty by keeping them from smoak, dust, flies, &c.

All pictures (but chiefly such in which mixtures of white-lead are us'd) will be apt to grow tawney, to tarnish or grow rusty, as may be seen in all old pictures.

In order to prevent this, expose them to the hot sun three or four days in *May* or *June*; and by that means the ill colour will be much drawn off, and the painting appear more fresh and beautiful: if this be done annually, it will preserve them wonderfully.

PALLAS } *Minerva*, (as taken for *Bellona*) *Licophrones*  
MINERVA } says, was painted with a flaming firebrand in her hand.

*Minerva*, has been describ'd by most writers in the shape of a young woman, of a lively and fresh countenance, yet of an angry look, a fix'd, stedfast eye, of a blueish green colour; completely arm'd at all points, holding in one hand a long spear, and in the other a target or shield of crystal, upon her helmet a garland of olive-branches; and having two children *fear* and *horror* by her side, with naked knives in their hands, seeming to threaten; sometimes the helmet is represented with a sphinx, or a cock for a crest, and two griffins on the sides of it.

The *Greeks* painted her sitting on a stool, and drawing forth fine threads from a distaff, the antients supposing her to be the inventress of spinning.

She is also painted in a blue mantle, embroidered with silver: and is call'd the goddess of wisdom.

PALLET [*with painters*] is a little oval table of wood or ivory, very thin and smooth; on and around which the painters place the several colours they have occasion for, ready for the pencil.

The middle serves to mix the colours on, and to make the tints requir'd in the work. It has no handle, but instead thereof, a hole at one end to put the thumb thro', to hold it by.

PALLET

## P A L

**PALLET** is the end of a squirrel's tail, spread abroad, and fastened to a flat pencil stick, which is broad at one end and split, much like an house-painter's graining tool; but much less.

It serves for taking up, and laying on whole leaves of gold or silver at a time, and serves for all the same uses that cotton does with *gilders*.

**PALLET** *with potters crucible-makers*, is a wooden instrument, almost the only one they use for forming, beating and rounding their works.

They have several kinds, the largest are oval with a handle, others are round or hollow'd triangularly; others in manner of large knives, serving to cut off what is superfluous on the moulds of their works.

**GIACOMO PALMA** call'd **PALMA VECCHIO**, born in 1508. studied at *Rome*, and after instructed by *Titian*, liv'd at *Rome* and *Venice*, excell'd in history and portraits; died in 1556, aged forty-eight years.

**GIACOMO PALMA**, *jun.* call'd **GIOVANE PALMA**, born in the year 1544, scholar of his father *Antonio*, nephew of old *Palma*; and studied *Titian* and *Tintoret*, liv'd at *Rome* and *Venice*; excell'd in history, died in the year 1628, aged eighty-four.

**PAN** was accounted by the antients, the god of the flocks of sheep and shepherds; and was represented in the proportions of a man from the middle upwards, of a ruddy and sanguine countenance, and very hairy body, his breast covered with the skin of a spotted *doe* or *leopard*, holding in one hand a shepherd's hook, and in the other a whistle: but from the middle downwards, having the perfect shape of a goat, in thighs, legs and feet.

*Plato* understood by *Pan* reason and knowledge: which is twofold; the one of a man and the other of a beast: by the upper part of *Pan*, he understood *truth* to be signified, and this accompanied with *reason*, which being divine, raises and lifts a man up to heaven; and by his lower parts, the falseness, beastliness, and rudeness of those who living here in the world, are only delighted with the pleasures and foolish vanities of it.

*Justin* relates, that a statue of *Pan* was set up in a temple near the *Palatine* hill in *Rome*, appearing to view all naked, excepting that it was lightly enshadowed and covered with a goat's-skin.

*By which was intimated, that (as it was reputed in those days) Pan had his habitation among hills, woods and groves, who was indeed most ador'd and worshipped by shepherds, as one who had the peculiar care and government of their flocks.*



## P A R

*Servius* understands, that by his horns are signified either the beams of the sun or new moon, at what time she is horned; his red face signifies the element of fire; his long beard, the air; his spotted garment, the starry firmament; his shepherd's hook, the rule and government of nature.

### *Dying* PAPER and PARCHMENT.

*To make marble paper.* Take divers oiled colours, put them severally in drops upon water, and stir the water lightly: then wet the paper (being of some thickness) with it, and it will be waved like marble.

### *To write golden letters on paper or parchment.*

You may do this with vermilion ground with gum-armoniack, ground with glair of eggs, and it will be like gold.

### *To take out blots, or make black letters vanish in paper or parchment.*

This may be done with *alum-water* or *aqua-fortis*, mixed with common water.

### *To make silver letters on paper or parchment.*

Take tin one ounce, quicksilver two ounces, mix and melt them, and grind them with gum-water.

### *To write with* GREEN INK.

Take *verdegrease*, *litharge*, *quicksilver*, of each a sufficient quantity, grind and mingle them with urine, and it will be a glorious green like *emerald*, to write or paint with:

Or thus; grind juice of *rue* and *verdegrease*, and a little *saffron* together, and when you would write with it, mix it with gum-water.

Or thus; dissolve *verdegrease* in *vinegar*, strain it and then grind it in common water, and a little honey, dry it, and grind it again with gum-water, and it is done.

### *To write on* PAPER or PARCHMENT *with* BLUE INK.

Grind *blue* with honey, then temper it with glair of eggs or gum-water made of ising-glass.

PARCÆ or the DESTINIES, call'd the three *fatal sisters*, named *Clotho*, *Lachesis* and *Atropos*.

*Clotho* is feign'd (by poets, &c.) to take the charge of the birth and nativities of mortals; *Lachesis* of all the rest of their life; and *Atropos* of their death or departure out of this world.

They are all three painted sitting on a row, very busily employ'd in their several offices; the youngest sister drawing out of a distaff a reasonable big thread: the second winding it about a wheel, and turning the same, till it becomes little and slender: the eldest (which is aged and decrepit) standing ready with her knife, when it is spun, to cut it off.

And they are describ'd invested with white veils and little coronets on their heads, wreathed about with garlands, made of flowers of *Narcissus*.

PAR-

## P A S

**PARSIMONY** is represented in painting, &c. by a virago modestly dressed, with a pair of compasses, and a purse full of money close shut in her hand, with a label with this motto, **SERVAT IN MELIUS**.

Her virile age declares her capable of reason and discretion, to join usefulness with honesty; her plain dress, hatred of superfluous expence; the compasses, order and measure of all affairs; the purse with the motto, that it is a greater honour to keep what one has, than to acquire or purchase what one has not.

**PA** **AGOSTINO PARISINO**, who engrav'd the 81 images design'd by *Florio Macchi*, found in a book intitl'd the emblem of *Paul Manlii*, us'd to mark his works with the preceeding mark.

**GIOSEPPI PASSARI**, born in the year 1654, liv'd at *Rome*, excell'd in history, died in the year 1714, aged sixty years.

**P** **BERNARD PASSERO**, an engraver of all subjects, us'd this mark.

**BARTOLOMEO PASSEROTTO**, scholar to *Jacopo Vignola*, *Tad. Zuccherò*, &c. liv'd at *Rome*, excell'd in history and portraits.

**PASSIONS**; says *Mons. le Bran*, are motions of the soul, residing in the sensitive part thereof, which makes it pursue that which the soul thinks for it's good, or avoid that which it thinks hurtful to it: and for the most part whatsoever causes passion in the soul, makes some action in the body.

It then being allow'd that the greatest part of the passions of the soul produce bodily actions, it is necessary we should know what those actions of the body are, which express the passions, and what action is.

*Action* is nothing but the motion of some part; and this alteration cannot be, but by an alteration of the muscles; and they have no motion but by the extremities of the *nerves* which pass through them: the *nerves* do not act but by the *spirits*, which are contain'd in the cavities of the *brain*; and the *brain* receives the spirits from the blood, which passing continually through the *heart*, is thereby heated and rarefied in such manner that it produces a certain *subtil air*, which ascends up to, and fills the brain.

The brain being thus fill'd sends back these spirits to the other parts by the *nerves*, which are so many channels or pipes, that convey the spirits into the muscles, more or less, according as the action requires, in which they are employ'd.

So as that muscle which is most in action receives the greatest quantity of spirits, and consequently becomes more swell'd than the others, which are depriv'd of them, and by such pri-

vation seem more loose and more wasted or shrunk than the others.

The antient philosophers having given two appetites to the sensitive part of the soul; they place the simple and unmix'd passions in the concupiscible appetite, and the wildest and compounded in the irascible appetite; the former comprehending *love, hatred, desire, joy and grief*; and *fear, boldness, hope, despair and anger*, they say, have their residence in the latter; others add *admiration*, which they place first, and after that *hatred, desire, joy and grief*; and from these they derive the others, which are compounded; as *fear, boldness, hope, &c.* All which, by what lines they are describ'd in drawings, see each under its particular article, and in the engraven plates.

But if it be true, that we have one part where the soul more immediately exercises its functions, and that this part is in the *brain*; we may also say that the *face* is the part, where it more particularly makes appear what it feels.

And if the gland in the middle of the *brain*, is the place where the soul receives the images of the passions; so the eye-brow is the part of the face, where the passions are best distinguished, tho' many have thought it to be in the eyes.

It is true the eye-balls, by their sparkling and motion, shew the agitation of the soul.

The mouth also, and the nose have a great share in the expression, (in drawing, &c.) but ordinarily these parts do but follow the motions of the heart.

And as there are two appetites in the sensitive part of the soul, in which all the passions are engendred; so there are two motions of the eye-brows, by which all the motions of such passions are express'd.

These two motions have a perfect resemblance of the two appetites, for that which sets up towards the brain, expresses all the savage and cruel passions: but there is something yet more particular in these motions; and according as the passions change their nature, the motion of the eye-brow changes its form: for a simple motion thereof expresses a simple passion; and if the passion is mix'd, the motion is so likewise. If the passion be gentle, so is the motion; and if that be violent, the motion is also violent.

But it is to be observ'd, that there are two sorts of elevations of the eye-brows, in the one the brow is rais'd in the middle, and this elevation expresses pleasant motions.

It is also to be observ'd, that when the eye-brow is rais'd in the middle, the mouth is rais'd at the corners; and in sorrow it is rais'd in the middle.

But

## P A S

But when the eye-brow is drawn down in the middle, it shews bodily pain, and has a contrary effect; the corner of the mouth being then drawn downwards.

In *laughter*, all the parts of the face go one way; for the eye-brows being drawn down towards the middle of the forehead, causes the mouth, nose and eyes to follow them in the same motion. See the figure *laughter* in the plate.

In *weeping*, the motions are mix'd and contrary: for the ends of the eye-brows next the nose, will be drawn down; and contrarywise, the same corners of the eyes and middle of the mouth, upwards. See the figure *weeping*.

There is another observation to be made, that when the heart is dejected, all the parts of the face will be cast down.

On the contrary, if the heart feels any passion, whereby it is heated or hardened, all the parts of the face will partake of this passion, and particularly the mouth; which proves what has been already said, that the mouth is the part of the face, which most particularly marks the motions of the heart.

For it is to be observ'd, when that laments, the corners of the mouth are drawn downwards; when that is pleas'd the corners of the mouth are rais'd; and when the heart has any *aversion*, the mouth is thrust out and rais'd in the middle.

### PASTES. *Observations for pastes and their colours.*

The making of these pastes is the essential point of the business; because on it depends the beauty of our artificial gems: but the baking also is not of less consequence, forasmuch as without that you cannot succeed. It is not enough to well regulate the fire during the time, whilst the matter is to stand in the furnace; but you must also take care that the crucibles don't break before the matter is well baked and purified: for if the crucible breaks, and you are forced to pour out the matter into another crucible, the whole work will be spoiled, and the matter will be full of pustles and blisters. You had much better let the crucible cool, if it be not quite broken; then lute it well, and put it in the furnace again to make an end of baking: you must also take notice not to break the crucible to take out the matter, before it be perfectly baked.

The curious may avoid these inconveniencies, if in room of ordinary crucibles, they make them of the same earth, that the pots for making glass are made of, which will resist the fire longer than we have occasion here for baking, and bear a more violent fire than we have occasion for.

Those of *Germany* also will do very well for this business, because they endure the fire better than the ordinary ones; but I will yet abridge all these precautions, by shewing an easy way

## P A S

to prepare the common crucibles, which I have seen tried, and resist the fire a longer time.

Take an ordinary crucible, or rather one of *Germany*: heat it a little in the fire, then dip it into olive oil, and let it soak a little of it in. Then take glass reduc'd to an impalpable powder, and strew it all over the crucible, both without and within, as thick as you can, then put it into a furnace in a small heat, and then increase the fire to a melting heat; then the glass will melt and vitrify so well with the crucible, that it will endure the fire far longer than is required for our business.

We will also further remark, that the colours we here shew for pastes are proportionable to the doses we give them; but those who would have them deeper and lighter, must regulate themselves accordingly: if they make small stones for rings, the colour must be deeper, by reason of the smallness: if they make greater, the colour must be lighter, but deeper for pendants than other. The whole depends much on the fancy of the workman, who is to proportion the doses of the colouring to the work he designs.

*The way to make very hard PASTES with sulphur of Saturn, and to give them all the colours of precious stones.*

To do this; take ten pound of natural crystal prepared, with six pound of salt extracted from *Polverine* of *Rochetti* purified, pounded and well searced, whereunto add two pound of sulphur of *Saturn* chymically prepar'd, (see sulphur of *Saturn* or lead) then mix these three powders well together, and put them into an earthen glazed pan, and cast on them a little common fair water, to reduce these powders into a lump something hard: afterwards divide them into several parcels, about three ounces each, making a hole in the middle, the better to dry them at the sun. Being well-dried, put them into an earthen pot well-luted, then calcine them through a fine sieve; this being done, put this powder into a glass furnace there to melt and purify for three days; then cast the matter into the water, as we have elsewhere shewn; and after you have dried it, put it again into the pot in the same oven, there to melt and purify for fifteen days, that it may be without spot, and that it becomes of the colour of precious stones.

The crystalline matter may be tinged of several colours; viz. emerald by means of copper thrice calcin'd; topaz by means of prepared *zaffer*; and so of others whereof we shall not treat here, having largely done it under their proper articles.

To succeed, you must put into the furnace, as many pots as you design to make different colours, add to each as much crystalline matter as you please, and regulate according to the weight

## P A S

weight of the tinging materials which you add to them, and proportionate them to those we have described in their proper articles.

This paste will have finer colours than the true natural stones, and approach near to their hardness, particularly that of the emerald.

PASTIL [*with painters, &c.*] a sort of paste made of several colours, ground up with gum-water, either together or separately, in order to make *crayons* to paint with, either on paper or parchment; also the *crayons* themselves, are call'd pastils. See CRAYONS.

PASTIME is represented in painting in purple trimm'd with gold.

PATIENCE is represented in painting, &c. by a woman of mature age, sitting on a stone wringing her hands, her naked feet upon thorns, a heavy yoke upon her shoulders.

The yoke and thorns declare this invincible virtue to endure the pains of the body, and a wounded spirit express'd by her wringing her hands; patience suffers adversity with a constant and quiet mind, which is nothing but an invincible virtue, declared in supporting the troubles of body and mind, represented by the thorns.

P. B. F. } Signifies *Paulus Blancus* fecit & incidit.  
B. B. }

P. C. signifies *Paul Caliari*, i. e. *Paul Veronese* painter and inventor.

PEACE is represented in painting like a lady, holding in her right-hand a wand or rod, downwards towards the earth, over a hideous serpent of sundry colours; and with her other hand covering her face with a veil, as loth to behold strife or war.

PEARLS. All the antients who have treated of the several sorts and properties of precious stones, have at the same time discoursed of pearls, because they claim a place amongst the first and best of jewels, in respect to their value as well as beauty, and the fix'd quality which they contain; they having been at all times sought after, for the ornament and pleasure of ladies, as they are at this day: for these reasons we thought it convenient to give them a place here, that (from our experience) the curious might be informed, how to make such artificially as fine and splendid, as those which nature forms in the depth of the ocean. We avow that the production of pearls is very different from that of precious stones, because the latter proceeds from the earth, and the former quite contrary, from the shell-creatures which are shrouded in the bottom of the sea; these receive their nourishment from the same liquid substance which contributes to the growth of the shells, and this slimy substance



## P E A

substance is resolved from the watry humour of the creature; by three several processes.

The first dries it by degrees, the next brings it to an hardness, and last of all 'tis at certain times employ'd by the animal, for the increase of its shell, and the place where this is effected in the inmost enveloped recesses thereof.

Now the first principle of these and all other precious stones descends from above, to wit, the universal seed which alone can give birth and increase to all the tenants of this vast universe; and these precious stones, as well as the metals, are nourished in the womb of the earth: so the living creatures bear each other the foetus within its parent, &c.

The oriental pearls are generated in the fish, which contains them with the mother of pearl, as the occidental or western in our oysters; but the beauty of these two are very different, the oriental being of a silver white, and exceeding splendid to the occidental, the best of these latter seldom arriving to any higher than the colour of milk.

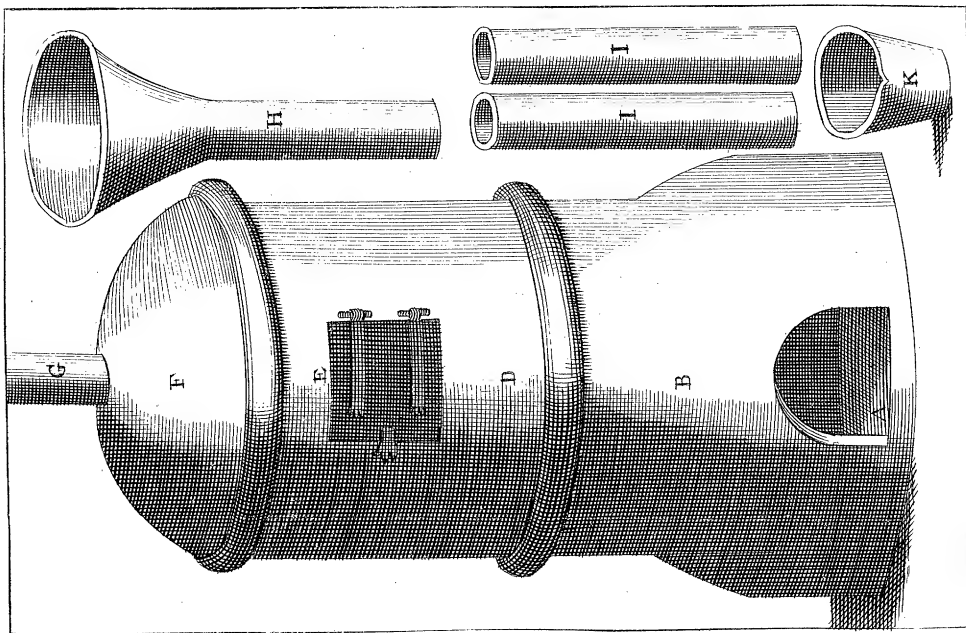
We will not here take notice of the particular places of the *East* where they are found, but only inform you, that the best and most beautiful come from the *Persian* gulph, about the isle of *Ormuz*, *Bassora*, &c. they are found in *Europe*, not only in the sea, but in rivers and fresh-water; we have them from *Scotland*, *Silesia*, *Bohemia*, *Frisia*, *Lorrain*, &c. in all which places they are found very fine, only those of *Frisia* are very small.

'Tis thought the fish wherein the pearl is generated, becoming sickly and weak, and not able to dispose of the slimy moisture for the growth of its shell, it remains in the body thereof and is dried.

Hence the birth of the pearl, and so by a continual supply of the like substance still coating it a-new, it becomes large, just as a stone in the bladder of a man, and other creatures engenders, and is fed by a clammy humour which cannot be emitted by urine, but remains behind, and so hardens and becomes a stone: after the like manner the bezoar stone is bred in *Indian* goats of the kingdom of *Golconda*, and in the galls of wild boars in *India*, and the hedge-hogs of *Malacca*; so several other stones, to which they give the name of bezoar, are found in the galls of beeves, deer, goats and other animals in *France* and elsewhere, all which have great virtues in physick.

How great and effectual those pearls are in physical matters, and what successes they have there, is not to our purpose; we only intend to shew the way to imitate their beauty by art so finely, and with such exactness of lustre, as not to leave it in the power of any to distinguish them easily from the true and  
natural







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natural ones; they being made of the very finest sort of paste as can be, and the same stuff as the true ones.

Poverty and pride are two inseparable companions amongst the *French*: such ladies as make use of pure pearl, are those that can afford it, and the little creatures that cannot reach the price, but would however appear gay, are obliged to have recourse to the counterfeit, and content themselves with only the imitation of nature. 'Tis some years since the use of these latter was introduced into *France*, which now not only the puny ladies, but those of birth and quality do wear; this proceeded all from that fashion which insensibly reached still at the larger pearls, which these ladies coveted for ornament, and because they could not be furnished enough with true, they made use of the artificial; whence the common sort of people received the advantage to vie with persons of the first rank and quality, which they don't fail to do, without consideration of either estate, or condition, but only to conform with the mode.

The counterfeit pearls, which are usually made, are just the colour of the pastes, and of no continuance but for the present; they are done with a composition of brittle wax after melted, and for colouring you use prepar'd mercury, mouth-glue, or any other drug to give them a brightness, which soon peels off, and scales away, especially in the heat of summer. The way which we will give is not only very good and solid, but exceeding fine, being effected with seed-pearl; we grant these pastes to be much dearer than the former, but consider their fineness, and that they will last for ever; we shall also shew how to make the counterfeits finer and harder, and we are persuaded that the preparation of those we shall assign, will appear so easy, and yet produce such fine imitations, as shall be very satisfactory.

### *Another way.*

Take pearl three ounces, prepared salt one ounce, filtrated juice of lemons, so much as will cover them four fingers breadth: let it stand so long till it be a paste; the glass being very close stopp'd; shake all together five or six times a-day, and when it comes to paste, put it into a glass with strong spirit of vinegar; and lute another glass over it; digest it three weeks in a cool place, under the earth so long, till all be dissolved; then mix it with a little oil of eggs or snail-water, till it be like pearl in colour: then put this paste into silver moulds, and close them up for eight days; after which take them out and bore them, and put them again into the mould for eight days. This done, boil them in a silver porringer with milk: lastly, dry them upon a plate in a warm place, where neither wind nor dust may come, and they will be much fairer than any oriental pearl.

To

## P E A

### *To whiten pearls.*

Take common roch-alum one pound, *Solomon's seal*, two ounces, camphire half an ounce, distil them from a clear water, and rectify it and use it with a fine soft linnen cloth.

Or thus, which is better. Take white salt one pound, con-found water, alcohol of wine, of each 12 ounces; lime, eggs, of each one ounce; bean-flower half an ounce, mix and distill them: or thus, wash them in a lixivium of burnt tartar, and keep them on a warm stove.

*The description of the furnace, for making Pearls.* See the Plate.

A is the ash-hole: you may add to it an hovel for sucking in the air, which must be luted to it very firmly.

B is the inside where the ashes fall into, this ought to be lofty, for drawing in the air.

C is the grate, which must be very strong iron-bars.

D is the opening, through which the crucibles and fuel is put in; this ought to be well tempered iron, and luted with a very good lute, at least three inches thick.

E is the chamber where the works are baked.

F is the coverlid of the furnace, which is to be vaulted firm, and made of the same earth.

G is the chimney, over which you may set several iron plates one above the other for drawing the air.

H is the hovel or shelving-place of iron for the ash-hole.

I are tunnels for the chimney-plates and the hovel.

K is a crucible.

If this furnace be made five or six inches thick, it will bear all degrees of heat, and serve very conveniently for private persons, by making it of a suitable largeness instead of the glass-house furnace: when you make your fire of wood, there will be no occasion of the hovel of the ash-hole.

But to go on with our pearl.

You must take two pound of thrice distilled vinegar, one pound of *Venice* turpentine, mix them together, and so put the mass into a glass cucurbit, fit to it the head and receiver, luting the joints, let them dry, and so set it on a sand-furnace to distil the vinegar; keeping a gentle heat, lest the stuff should swell up.

Afterwards put the vinegar into another glass cucurbit, wherein you must hang a quantity at discretion, of seed-pearls, strung on a thread of silver or gold, done about with a piece of very thin silk; the hand must be put in the middle of the body, so as not to touch the vinegar. This done, head your cucurbit with a blind head, and lute it very well, set it in a *Balneum Mariae* well-closed; there to remain for a fortnight, the heat of the B. will elevate the fumes of your vinegar, and they will  
con-

## P E A

continually circulate about the pearl, and so soften and bring them to the consistence of a paste; which being once performed take them off, and mould them in what form you please, long, round and pear-like, and as big as you think fit, do this with moulds of fine plate gilded; you must not touch the paste at all with your hands, but altogether work it with a plate spatula, which will fill the moulds, then bore them through with a poroker's bristle or gold wire, and let them dry a little, then thread them again with gold wire, and set them in a closed glass, which lay in the sun to dry them to a hardness; set them afterwards in a glass matrafs in a stream of running-water, leaving it there for twenty days, and about that time they assume their first solidity and hardness.

To give them transparency and splendor, you must prepare some mercury-water after the rate we shall prescribe hereafter.

When you have taken them out of the last matrafs wherein they were for twenty days as the running water, hang them in a vessel of glass where the mercury-water is, and so they will moisten and swell, and assume their oriental beauty: this done, shift them out of this water into a matrafs closed hermetically, for fear that any water should be admitted into it, and so down with it into a well, leaving it there for eight whole days; then draw it up, open the matrafs, and you'll have them as fine and good as any oriental pearls whatever.

This method is a little long, but withal it is effectual and sure; however it is not thus the philosophers, or virtuosi work, for they have another way much shorter, having regard only to spirit: nor have I experience enough in their matters to make a discovery thereof; and if I had, it could not be done without disobliging them irreconcilably: therefore take what I have delivered on this important subject in good part; and be assured, that if you were acquainted with that secret which they so closely reserve, there could be nothing done more by it, as to goodness and beauty in this work, than by our prescribed method, which is very estimable, and more precious than you'll imagine; whereof I can assign you no better, or other argument, than experience to convince you.

*To make mercury-water, for giving transparency and splendor to pearls.*

Having promis'd this secret of making mercury-water, to compleat the transparency and natural lustre to pearls, which is a matter so highly valuable, that a very considerable sum has been offered in our presence, for the discovery thereof to a certain person; yet we are free that experience should have its due course of informing the ignorant, and shall for our part generously acquit our engagement.

You

## P E A

You must take plate-tin of *Cornwal* calcined, let the calx be very fine and pure, amalgamate one ounce thereof, with 12 ounces of prepared mercury well purified, wash the amalgama with water, until the water remains clear and insipid, then drying the amalgama thoroughly, put it into a matrafs over a furnace, keeping such a degree of heat as is required for sublimation. When the matter is well sublimated, take off the matrafs and let it cool, and so take out the sublimate, to which add one ounce of *Venice* sublimate, and grind them well together on a marble, so put them into another matrafs, close it very well and set it topsy-turvy in a pail of water, and the whole mass will in little time resolve itself into mercury-water: this done, filter it into a glass-receiver, and set it on a gentle ash-fire to coagulate, and it will be brought to a crystalline mass. Take it off, and with a glass pestle and mortar pound it very well to a very fine powder, which scarce thorough a very fine sieve, and put it into a well stop'd matrafs in *B. mariæ*, letting it remain till it resolve again in water, and this last shall be the mercury-water, which you must preserve to employ on your pearl.

### *Another way to make these pearls.*

This is an easier way than the former; for by baking them, (as we shall shew) you very much shorten the time which the preparation would else take up: however, you must not expect them so delicate and natural as the first, the cause whereof is easy enough conceived; for these pearls having enlarged themselves in the water, as we already noted, 'tis reasonable to believe the hardening them afterwards in the cold will be of a much more natural effect than if done with heat.

Take very fair oriental pearl-seed for this purpose, and reduce it to an impalpable powder on a marble, to dissolve afterwards in mercury-water or clarified juice of lemons: if this be not effected quick enough, set it in a cucurbit over warm ashes, and be careful to take the cream (which in a little time will appear at the top) immediately off; so withdraw the dissolution from the fire and let it settle a little. This done, pour it gently into another glass-body and keep it a-part, and you'll have the pearl in a paste at bottom, with which fill your gilded plate-moulds, made to what bigness or form you think fit, pressing the paste with the silver spatula, and so shut them up. 24 hours after you must take and bore them through with a porker's bristle, close up the moulds and leave them in the oven in a paste of barley-dough, which being half baked, draw out and open, taking away all the pearl, and steep them in the dissolution just before directed, to be kept apart, putting them in and out several times, so close them in their moulds, and  
bake

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bake them again with the like paste as before; only let this last be almost burnt up before you draw it out, thus you'll have the pearl well baked and hardned.

This done, draw it out, open all the moulds, take away the pearls and string them on one or more gold or silver threads, steep them in mercury-water for about a fortnight, after this dry them in the sun in a well-closed glass body, so you'll have a very fine and splendid pearl.

### *Another way.*

Tho' this be a more common way than the precedent, we will not omit it, because every one may have his choice to take that method which best suits with his apprehension or conveniency.

You must, as in the former, take very fair oriental feed-pearl ground to an impalpable powder and dissolve it in alum-water, then rack off that water, and wash off the paste of pearl which remains at bottom, first with some distilled waters, then in bean-water, and set it in *B. Mariæ* or horse-dung to digest for a fortnight, afterwards take out your vessel, and your matter being come to the consistency of a paste, mould up your paste in the gilt silver moulds as before directed, bore them with a bristle, string them on gold or silver thread, and hang them in a very well clos'd limbeck of glass, to prevent the air from coming in to spoil them.

Thus dried, lap them one by one in leaves of silver, and split open a barbel as if you were to fry him, and so close them all up in his body; make a paste of barley-meal, and bake him as you would do a batch of bread and no more, afterwards draw it out, and let them dry.

To give a transparency and splendor to these pearls, if you don't care to use the mercury-water, instead thereof, take the herb *Gratuli* squeez'd in water, put into this water six ounces of feed-pearl, one ounce of salt-petre, an ounce of roach-alum, an ounce of litharge of silver, the whole being dissolved; take your dried pearls, heat them first, then cool them in this dissolution, thus do for about six times at least, heating and cooling them at this rate therein.

If your pearl should happen to fail of coming to a sufficient hardness, you may correct and make them exceeding hard, by baking them a second time after this manner.

Take two ounces of calamine, or lapis calaminaris in impalpable powder, add to this two ounces of oil of vitriol, and two ounces of water of white of eggs, put all these into a retort, lute thereto a receiver, and let them distil, and you'll have from it a very fair water, with which and some fine barley-meal make a paste; coffin your pearls in this, and bake them in

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an oven as before, they will thus become exceeding hard, and recover their natural transparency.

### *How to blanch fine pearl.*

The beauty of pearl consists intirely in the brightness of their white colour, such as are spotted or of a dark yellow being the least estimable: you may however restore these last to a true lustre and whiteness, by letting them soak and cleanse first with bran-water, then in milk warm water, and lastly steep them 24 hours in mercury-water; this done, string and hang them in a well-clos'd glass body to dry in the sun as before.

The bran-water is made by boiling two good handfuls of wheaten bran in a quart of water, until the water has drawn all the strength thereof to it; and thus you are to use it afterwards for cleansing the pearl. You must string and lay them all together in a glaz'd earthen pan, and pour thereon one third of this water; when they have soaked until the water be tolerably cool'd that you may indure the heat, rub them with your hands gently to cleanse them the better; continue so, until the water be cold, pour out this water, and pour on another third part of the bran-water, still boiling and so use as the former, throwing it away when cold, then pouring on the remainder of the water, proceeding still after the former manner; after this, just heat some fair water, and pour it on them to refresh and take away the remains of bran, shift this water, pouring on more fresh warm water, do thus thrice without handling them, then lay them on a sheet of very clean white paper to dry in a shade, and last of all steep them in your mercury-water, to bring them to perfection.

### *To make counterfeit pearl very like the natural.*

This receipt for making counterfeit pearl, has a much more fine and solid effect than any now-a-days in use.

Take chalk well purified and separated from its grossness and sand, make paste thereof, and so mould it up like pearl in a mould for that purpose, pierce these through with a bristle, and let them afterwards dry before the sun, or for more dispatch in an oven till they receive a just hardness; then string them on a very fine thread of silver, colour them lightly over with bole armoniack, diluted in water of white of eggs, then drench them with a pencil and fair water, and so apply leaf-silver all over and let them dry; this done, burnish them with a wolf's tooth till they shine very finely.

To give them a true colour of pearl, make a glue of parchment or rather vellum shavings, thus.

Wash the shavings in warm water very well, and boil them after in a new pot to a thickness, and strain this.

When

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When you use this glue, you must warm it on a flat vessel; then dip the string of pearls therein, so as not to fill the interval inches between each pearl, but that every one may be done all over equally; after this, let them dry. If you observe any baulk or defect on them, you may dip them in a second time, and they'll assume a finer and more transparent whiteness, and will have a certain darkness within and lustre on the outside, which compleats and brings them to the beauty of fine real pearls. But in this last case, if instead of this glue, you dip or varnish the pearls after they are silvered, with a white varnish, and so polish them, they will not only be fairer, but more durable like true pearl.

PEARLS are imitated [in *painting in miniature*,] by laying on a mixture of *white* and a *little blue*, and shading them and swelling them with the same; but a little stronger.

Lay on a small white spot, just in the middle of the light side, and on the other, between the shade and the border of the pearl, give a touch of *masticot*, to make a reflection; and underneath give them a cast of the colour they are upon.

*To dye woollen a PEARL colour.*

For one pound of stuff, take one ounce of *blue lac*, half an ounce of *blue wood*, and half an ounce of burnt *alum*.

First boil the *blue wood* for a quarter of an hour in a bag, then take it out, and having powdered and sifted the *lac* through a hair sieve, skim the liquor, and stir it very well for a quarter of an hour, and help it with a quarter of an ounce of *pot-ashes*.

*To dye SILK a pearl-colour.*

To every pound of silk, take one ounce of *Orleans*, dissolve it in water, and wave the dry silk in it till it lathers; but it must not boil; then rinse and beat the silk clean, and take for every pound of silk four pound of wild *saffron* very well press'd, and four ounces of *pot-ashes*, with half a pint of *lime-juice*. The *Italian* carnation or flesh-colour is prepared the same way.

*Another.*

Take a clean vessel, put fair water into it, and for every pound of silk, take a quarter of a pound of soap, and boil the silk in it for two hours, then pour some rain-water in a vessel, to which add a bowl-full of the blue lye; or if that be too much, you may use half the quantity only at pleasure, then rinse out the silk and dry it.

THOMAS PEMBROKE was both a history and face-painter, and disciple of *Laroon*, whose manner he imitated; he painted several pictures for the Earl of *Bath*, in conjunction with one Mr. *Woodfield* a disciple of *Fuller*, and lately living.

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He died in *London* in the 28th year of his age, and about 50 years since.

JACOB PEN was a *Dutch* history-painter in the reign of King *Charles II.* He was excellent both in drawing, colouring and composition, and died in *London* about 30 years ago.

PENITENCE is represented in *painting* by a woman in a vile, ragged and base attire, infinitely deploring her being; and bemoaning herself in passionate fits above all measure, continually weeping.

**L**UCA PENNI ROMANO or *Luca P. R.* was *Raphael Urbin's* scholar, and brother to *Fattorino*; he invented very beautiful subjects, which were engraven by *George Ghissi* of *Mantua*, in 1566. He us'd this mark.

**G**GEORGE PENS painter and engraver at *Norimberg*, together with *Mark-Anthony Raimondi*, engrav'd the works of *Raphael* in *Rome*. He engrav'd after *Aldograft's* manner, his mark was sometimes G. P. 1554.

PENSIVENESS is represented [*in painting, &c.*] by an old woman full of grief, in pitiful clothes without ornament, sitting upon a stone; her elbow upon her knees, and both hands under her chin; a tree by her without leaves.

Old, because youth is jovial; she is poorly clad, which suits with the tree without leaves; the stone shews that she is barren in words and deeds: but though she seems listless in the winter in politick actions; yet in the spring, when there is need of wise men, then pensive men are found by experience to be judicious.

PERFECTION is represented [*in painting, &c.*] by a fair lady in a vest of gold gauze, her bosom unveiled, her body is in the *Zodiac*, her sleeves turn'd up to her elbows, making a perfect circle with the left.

The golden robe denotes perfection; the naked breasts, the chiefest part thereof to nourish others; the circle, the most perfect figure in the mathematicks.

PERIDORE is a precious stone, a sort of a clear *Topaz*, of a gold-colour light, but which is notwithstanding beautiful.

To imitate it well, take two ounces of natural crystal in powder, 6 ounces of *minium*, an ounce of fine salt of *tartar*, and eight grains of *verdegrease*; reduce the whole to an impalpable powder, by pounding in a mortar, scarce it through a fine sieve. The same circumstances are to be observ'd in baking this stone as in the *Jacynth*, (which see) by reason of the *minium* that enters into the composition of the one and the other, and you will have a very fine *Peridore*.

*Another colour of Peridore.*

This *peridore* ought to be harder and more fix'd than the prece-

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precedent, because there is no *minium* in it; but it will not be so vivacious.

Take one ounce of natural crystal in powder, a dram of *salt of vitriol*, two drams of *vitriol* calcin'd *ad rubedinem*, four grains of *verdegrease*, and as much fine *salt of tartar* as equals the whole in weight, *i. e.* one ounce, three drams and four grains; reduce all to a fine powder, by pounding them in a brass mortar, mix them well together, put them into a crucible covered with another, and well luted; 12 hours after, take your crucible and break it to take out the matter, which cut and polish at the wheel, and let it be wrought by a good workman.

**P** FRANCIS PERRIER painter and engraver, publish'd several *Roman* antiquities in 1635, with this mark, as in the Index of *Rossi's* plates.

PERSECUTION is represented [*in painting, &c.*] by a woman clad in *verdegrease*, and rust-colours, wings upon her shoulders; in a posture as if she would let fly an arrow; with a crocodile at her feet.

The wings shew its being evermore ready and quick in doing mischief; the bow her sending out bitter words; the crocodile because it annoys only the fish that flee from it; so persecution desires nothing more than to find those who do not resist it by their own strength.

### Of PERSPECTIVE *in general.*

1. Is that by which we behold, contemplate and draw the likeness of all magnitudes, just in form and manner as they appear to the eye.

2. The matter to be seen or speculated is a magnitude: the manner of speculation is by radiations of light, either direct, rectified or broken.

3. A magnitude is that which hath form; and it is either lineal, superficial or solid; that is, either a complication of points, a complication of lines, or a complication of superficies.

4. A line is a complication of points; that is (according to *Euclid*) a length only without either breadth or thickness.

5. A superficies is a complication of line, that is, a length having breadth without thickness.

*For as the continuation of points makes a line; so the conching together of lines makes a superficies; which is only the laying cross-wise.*

6. A solid is a complication of superficies, that is a length or breadth having depth or thickness.

*And indeed it is nothing but the continuation of points, upon a superficies either perpendicularly or bending.*

7. The contemplation of the object represents the matter to the mind, in the same manner as its outward appearance doth to the eye.

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And from hence comes judgment, whereby the artist is enabled to describe the same in lines, and delineate it according to the apparent or visual proportions.

8. To draw or describe the appearance in lines, is the active part of this art ; whereby the idea conceiv'd in mind (by sight and contemplation) is brought to light.

9. A radiation is a beam of light, conveying the likeness of the thing to the eyes or sight ; and the knowledge of it, to the mind or understanding.

*And this radiation is two-fold, either external, from the external light, or intellectual from its being and power.*

10. Direct radiations are those, which consider the direct or streight beams, which pass between the eye and the object.

*And this is the first kind of perspective ; and is frequently alone call'd Opticks.*

11. Reflected radiations, are those which consider the reflection of beams and their shape upon any polish'd body, as on a Globe, Cone, Cylinder, Pyramid, or any regular solid.

*And this is the second kind of perspective ; which is call'd Catoptricks.*

12. Broken radiations, are those which consider the breaking of the beams, as they are to be seen through a glass or a crystal, cut into several planes or superficieses.

*And this is the third and last kind of perspective ; which is call'd Dioptricks.*

### *The general practice of PERSPECTIVE.*

1. Let every line which in the object or geometrical figure, is straight, perpendicular or parallel to its base, be so also in its scenographick delineation.

2. Let the lines which in the object return at right angles from the fore-right side, be drawn scenographically from the visual point.

3. Let all strait lines, which in the object return from the fore-right side, run in a scenographick figure into the horizontal line.

4. Let the object you intend to delineate, standing on your right-hand, be plac'd also on the right-hand of the visual point ; and that on the left-hand, on the left-hand on the same point ; and that which is just before in the middle of it.

5. Let those lines which are (in the object) equidistant to the returning line, be drawn in the scenographick figure, from that point found in the horizon.

6. In setting off the altitude of columns, pedestals and the like, measure the height from the base line upward, in the front or fore-right side ; and a visual ray down that point in the front shall limit the altitude of the column or pillar, all the

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the way behind the fore-right side, or orthographick appearance, even to the visual point.

*This rule you must observe in all figures, as well where there is a front or fore-right side, as where there is none.*

7. In delineating ovals, circles, arches, crosses, spirals and cross arches, or any other figure in the roof of any room, first draw ichnographically, and so with perpendiculars from the most eminent points thereof, carry it up unto the ceiling; from which several points carry on the figure.

8. The centre in any scenographick regular figure, is found by drawing cross lines from opposite angles: for the point where the diagonals cross, is the centre.

9. A ground plane of squares is alike, both above and below the horizontal line; only the more it is distant above or beneath the horizon, the squares will be so much the larger or wider.

10. In drawing a perspective figure, where many lines come together, you may for the directing of your eye, draw the diagonals in *red*; the visual lines in *black*; the perpendiculars in *green*, or other different colour, from that which you intend the figure shall be of.

11. Having considered the height, distance and position of the figure, and drawn it accordingly, with side or angle against the base; raise perpendiculars from the several angles or designed points from the figure to the base, and transfer the length of each perpendicular, from the place where it touches the base, to the base on the side opposite to the point of distance; so will the diametrals drawn to the perpendiculars in the base by intersection with the diagonals, drawn to the several transferred distances, give the angles of the figures, and so lines drawn from point to point will circumscribe the scenographick figure.

12. If in landskip there be any standing-waters, as rivers, ponds and the like; place the horizontal line level with the farthest sight or appearance of it.

13. If there be any houses or the like in the picture, consider their position, that you may find from what point in the horizontal lines to draw the front and sides thereof.

14. In describing things at a great distance, observe the proportion (both in magnitude and distance) in draught, which appears from the object to the eye.

15. In colouring and shadowing of every thing, you must do the same in your picture, which you observe with your eye, especially in objects lying near; but according as the distance grows greater and greater, so the colours must be fainter and fainter, till at last they lose themselves in a darkish sky-colour.

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16. The *Catoptricks* are best seen in a common looking-glass, or other polish'd matter; where, if the glass be exactly flat, the object is exactly like its original; but if the glass be not flat, the resemblance alters from the original; and that more or less, according as the glass differs from an exact plane.

17. In drawing *Catoptrick* figures, the surface of the glass is to be considered, upon which you mean to have the reflection: for which you must make a particular *ichnographical* draught or projection; which on the glass must appear to be a plain full of squares, on which projection transfer what shall be drawn on a plane, divided into the same number of like squares; where tho' the draught may appear very confus'd, yet the reflection of it on the glass will be very regular, proportional and regularly compos'd.

18. The *Dioptrick* or broken beam may be seen in a tube through a crystal or glass, which hath its surface cut into many others, whereby the rays of the object are broken.

*For to the flat of the crystal or water, the rays run streight; but then they break and make an angle, the which also by the refracted beams is made and continued on the other side of the same flat.*

19. When these faces on a crystal are return'd towards a plane plac'd directly before it, they separate themselves at a good distance on the plane; because they are all directed to various far distant places of the same.

20. But for the assigning to each of them a place on the same plane, no geometrick rule is yet invented.

### *Of the uses of PERSPECTIVE.*

1. *Perspective* then is a science or rather an art absolutely necessary to one who would *draw* well, *engrave*, *etch*, *carve* or *paint*; and which men of those professions ought not to want: yet they are not to be so wholly subject to its precepts, as to enslave these arts to its rules.

2. It is to be us'd, when it leads you pleasingly into the beauties of your work, and can be helpful to you in your design; but when it will not be useful to these purposes, you are to pass it by, lest it should misguide you, by leading you to something that is repugnant to your peculiar art.

3. *Perspective* cannot of itself be call'd a certain rule, but it is to be us'd with judgment, prudence and discretion; for if it be perfectly understood by you, and yet you use it too regularly, tho' you may effect such things as are within the rules of art, yet the work will not always be pleasing to the sight.

4. The greatest painters who have made use of it, if they had rigorously observ'd it in their designs, they had much diminish'd the glory to which they attain'd, and to which time will give a kind of immortality.



Fig. 1. Square

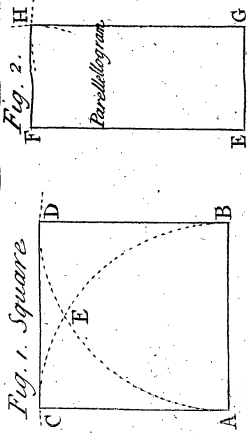


Fig. 2. Parallelogram

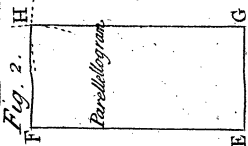


Fig. 3. Triangle

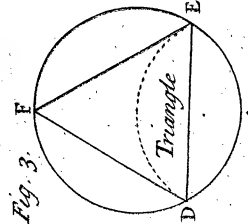


Fig. 4. B

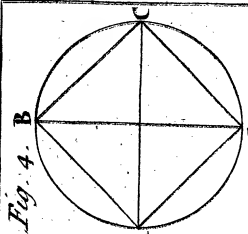


Fig. 5. A Pentagon

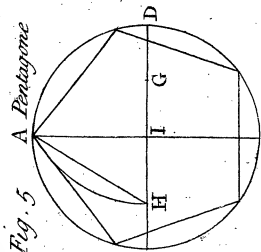


Fig. 6. Exagon

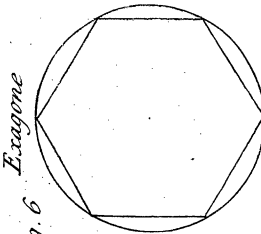


Fig. 7

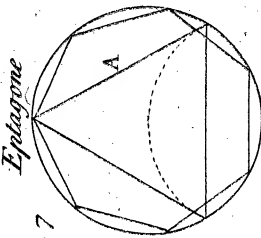


Fig. 8. Octagon

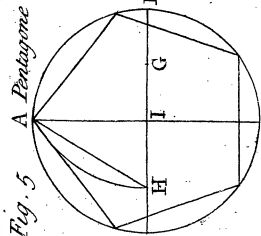


Fig. 9

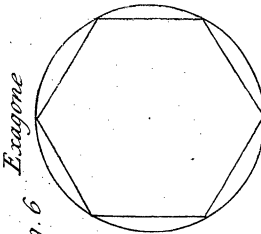


Fig. 10. A Decagon

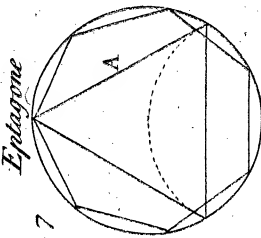


Fig. 11. Endecagon

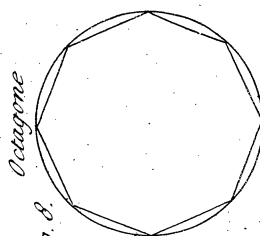


Fig. 12. Dodecagon

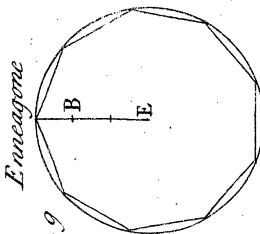


Fig. 13.

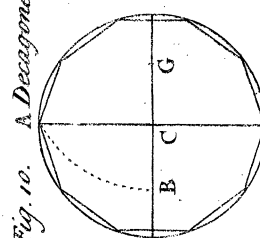


Fig. 14.

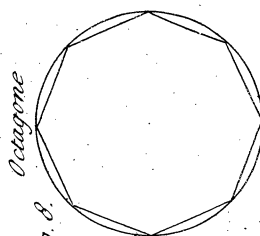


Fig. 15.

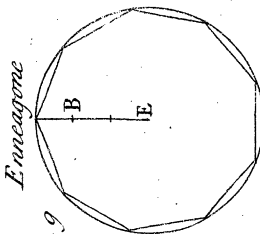
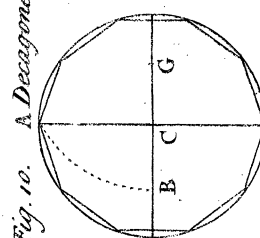


Fig. 16.





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5. Such as follow its precepts too closely, may indeed make things regularly true; but will be very deficient in that harmonious excellency, that exquisite beauty and that charming sweetness, which would otherwise have been found in them.

6. The architects and statuaries of antient times did not always find it to their purpose; it was not their prudence to trace the *geometrical* part so exactly as the rules of perspective do require.

7. If you would imitate the frontispiece of the *Rotunda*, according to the rules of perspective, you would err very much; for the columns which are at the extremities have more in diameter, than those that are in the middle.

8. The cornish of the *Palazzo Farnese* which looks so beautifully, if beheld from below, yet being more nearly view'd, is found to want very much of its just proportion.

9. In the *Pillar of Trajan*, the highest figures are much greater, than those which are below; which by the rules of *perspective* should be quite contrary: here they increase according to the measure of their distance.

10. There is a rule which teaches the making figures after that manner; but it is no rule in *perspective*; tho' it is found in some books of that art; and it is never to be made use of, but when it is for your purpose: *viz.* when it may ease the sight, and render the object more agreeable.

11. The *Farnesean Hercules*, its base is not on the level, but on an easy declivity on the advanc'd part; the reason of which, is, that the feet of the figure may not be hidden from the sight; but appear more pleasing to the eye.

12. And this is the true reason, that these great men have sometimes stept aside from the geometrical rules of *perspective*, not in slight or contempt of the art; but for the absolute pleasing of the sense of sight.

### *Methods of describing geometrically figures necessary in* PERSPECTIVE.

1. A line, as A B fig. 1. *being given to form a square on*; set one foot of the compasses in the point A, and extending the other the length A B, describe the arch B C; then from the point B describe another arch A D, intersecting the former in E, and from E set off half the arch E A or E B outwardly, to D and C, to which points drawing lines from A B, &c. the square is formed.

Or thus; Upon the given line A B, erect a perpendicular A C equal to A B, then taking the length A B in the compasses, set one foot in B, and with the other describe an arch: having done the like from the point C, the intersection of the two arches will be the point D, which gives the square A B C D.

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2. *To describe a Parallelogram* or long square: on the term E of the given line E F erect a perpendicular, either greater or less than the same as E G: then taking E G in the compasses, set one foot in F, and with the other describe an arch; also take E F in the compasses, and setting one foot in G, describe a second arch, cutting the former in H: this will produce the parallelogram requir'd.

Of circular polygons, which are figures of several angles inscrib'd in circles.

3. *To describe an equilateral triangle.* Open the compasses to the radius of the circle, set one foot in the point A, and describe the arch D E, and draw a right line D E, which will be the side of the triangle D E F.

4. *For a square*; draw two diameters at right angles, and join their extremes: thus you will have the square  $A B C D$ .

5. *For a pentagon or five-angle*; draw two diameters, and take D G, half the semi-diameter D I, and from the point G with the interval G A, describe the arch A H: the chord of which is the side of the pentagon.

6. For the hexagon or six-angle; the semi-diameter is the side of the hexagon.

7. For the heptagon or seven-angle; take half a side of the equilateral triangle.

8. *For the octagon or eight-angle* ; take half a quadrant of the circle.

9. For the *enneagon* or *nine-angle*; take two thirds of the semi-diameter for the side, as E B.

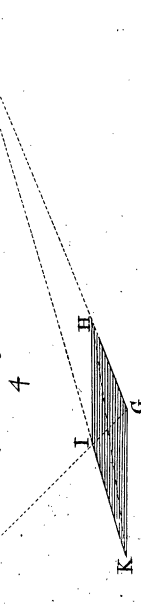
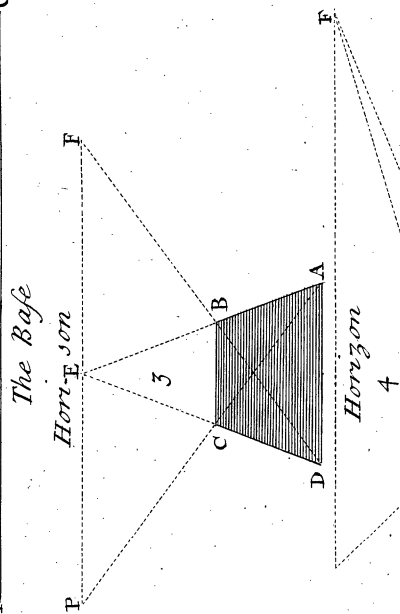
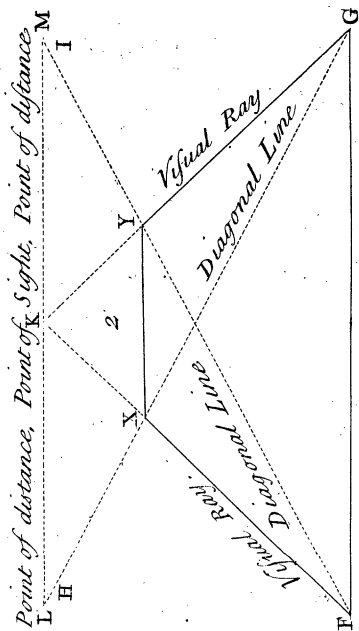
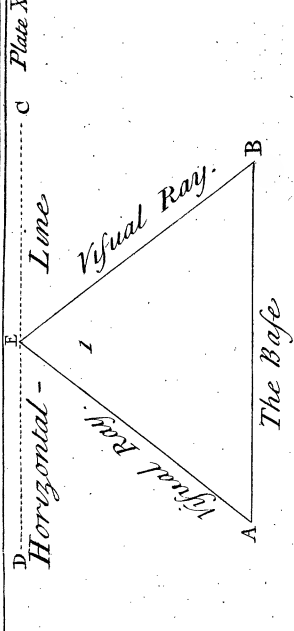
10. For the decagon or ten-angle; divide the semi-diameter into two in the point G, and from G with the interval G A, describe an arch A B: the part of the diameter B C, will be the side of the decagon.

II. *For the un-decagon or eleven-angle*; draw two diameters at right angles, and from the point A, with the interval of a semi-diameter describe an arch BC; then from the point of intersection C, draw a line to E, and the portion CD will be the side of the un-decagon.

12. For the do-decagon or twelve-angle; divide the arch of a hexagon A B into two equal parts; and the chord of the ~~angle~~  
tx will be the side.

13. *An Oval* is form'd divers ways, in all which the figure is either a compound of several portions of circles, or it is one line drawn from two centres. The most usual methods are these: first describe a circle and draw two diameters in it as A B, C D; then from the points A, B, draw two other circles equal with the first; then from the point D, draw a line through the center of the last circle to the circumference E.

## When





## P E R

When you have done this, set one foot of the compasses in D, and with the other take the interval E, and describe the arch EF, and doing the like on the other side, the oval will be formed.

14. *For a rounder oval*, draw a single line, and from A, as a centre, describe a circle, the intersection of which with the right line in the point B, will be the centre of another circle. Then to form the oval, take in the compasses the whole diameter of one of the circles, as from A to F; and in one of the intersections of the circles, as D, setting one foot of the compasses, with the other draw the arch GH: do the like from the point E.

15. There is also an easier and more useful manner of describing ovals, than any of the preceding ones: the same rule serving for all forms, long, and narrow, broad, short, &c.

Thus, set two nails or pins in a right line, AB, to serve as a centre, and about these tie a thread of the length and width of the oval required, as ABC; hold the thread tight with a pen or pencil, and turn it about till you arrive where you began. If you would have it a long one, set the centre farther apart; and if a short one, do the contrary: for if the nails stand close together, the figure will be a circle.

16. *For a spiral, or volute*, take two points in a line, AB; the points to serve one after another as centres. As for instance, having drawn the semicircle AB, set one foot of the compasses in B, and open the other to the length AB, and describe a semicircle, AC; then set one foot in A, take the interval AC, and draw the semi-circle CD; and this continue as long as you please, still shifting centres.

### *Of Lines and Points in Perspective.*

The TERRESTRIAL LINE, BASE LINE, LINE of the PLAN,	}	is the line an object is placed or stands upon, of which each object has its parti-
cular one, and the whole draught a general one.		

This is always parallel to the horizon, as is seen in AB of the first figure of the plate, FG of the second, and NO of the third; and sometimes serves to determine the lengths and breadths; particularly that at the bottom of the piece, whereto all the measures are to be accommodated; as will be shewn hereafter.

The POINT of SIGHT, The POINT of the EYE, PRINCIPAL POINT, POINT of PERSPECTIVE,	}	is a point in the axis of the eye, or in the central ray, where the same is inter-
sected by the horizon.		

Thus the point E in the first figure, is the point of sight in the horizon CD, wherein all the visual rays meet.

It



## P E R

It is called the *Point of the Eye*, or *Ocular Point*, because directly opposed to the eye of the person who is to view the piece.

### *Of the POINT or POINTS of distance.*

These are a point or points (for there are sometimes two of them) placed at equal distance from the point of sight.

They are thus denominated, by reason the spectator ought to be so far removed from the figure or painting, and the terrestrial line, as these points are from the point of the eye, and are always to be in the horizontal line.

Thus, H I (see plate, fig. 2.) being the horizon, and K the point of sight, L and M are points of distance, serving to give all the shortenings.

Thus *ex. gr.* if from the extremes of the line F G you draw two lines to the point K, and from the same points draw two lines to the points of distance M and L, where these two lines G L and F M cut the lines F K and G K in, the points X and Y will be the line of depth, and the shortening of the square, of which F G is the scale and base. The lines drawn to the points of sight are all visual rays, and those drawn to the points of distance all diagonals.

### *Of the POINT of FRONT, fig. 3.*

The point of DIRECT VIEW, or of the FRONT, is when we have the object directly before us, and not more on one side than the other; in which case it only shews the fore-side, and if it be below the horizon, a little of the top too; but nothing of the sides, except the object be polygonous.

Thus the plan A B C D fig. 3. is all in front, and if it were raised we should not see any thing of the sides A B or C D, but only the front A D: the reason is, that the point of view E being directly opposite thereto, causes a diminution on each side; which however is only to be understood where an elevation is the object; for if it be a plan, it shews the whole, as A B C D.

### *Of the SIDE POINT, fig. 4.*

The point of OBLIQUE VIEW, or of the SIDE, is when we see the object aside of us, and only as it were aslant, or with a corner of the eye; the eye however being all the while opposite to the point of sight: in which case we view the object laterally, and it presents us two faces or sides.

For instance, if the point of sight be in F, the object G H I K will appear athwart, and shew two faces G K, and G H, in which case it will be a side point.

The practice is the same in the *side points* as in the front points; a point of sight, points of distance, &c. being laid down in the one as well as the other.

*De-*

Fig. 1.

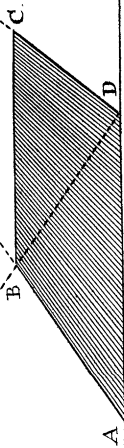


Fig. 2.

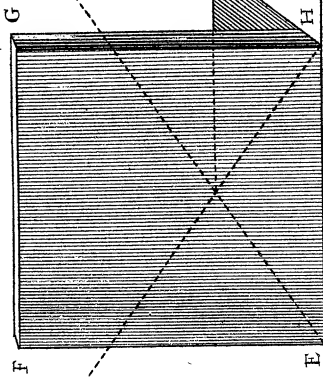


Fig. 3.

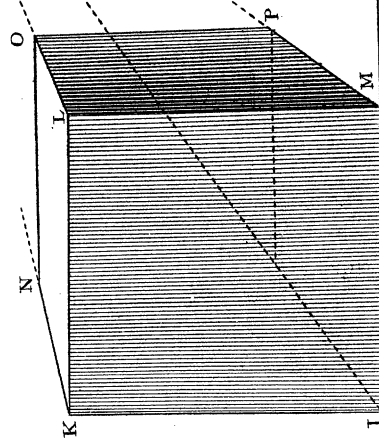




Fig. 1

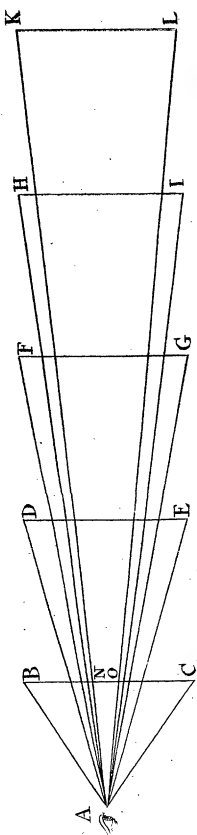


Fig. 2.

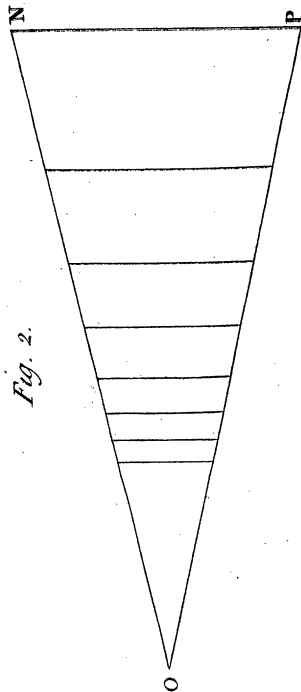


Fig. 3.

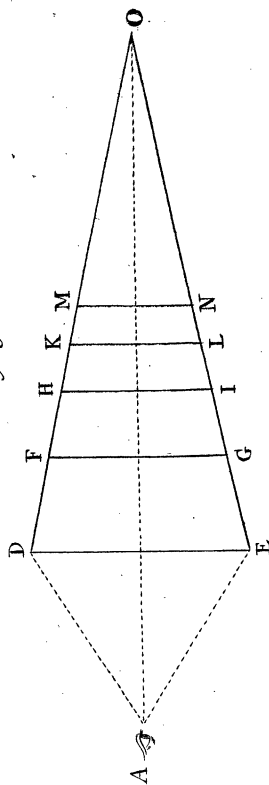
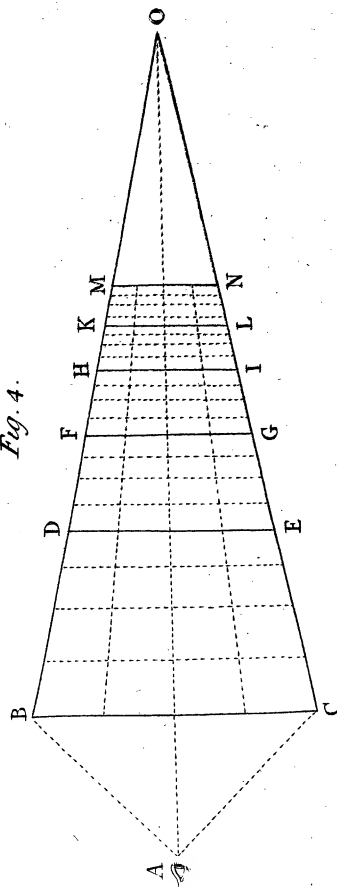
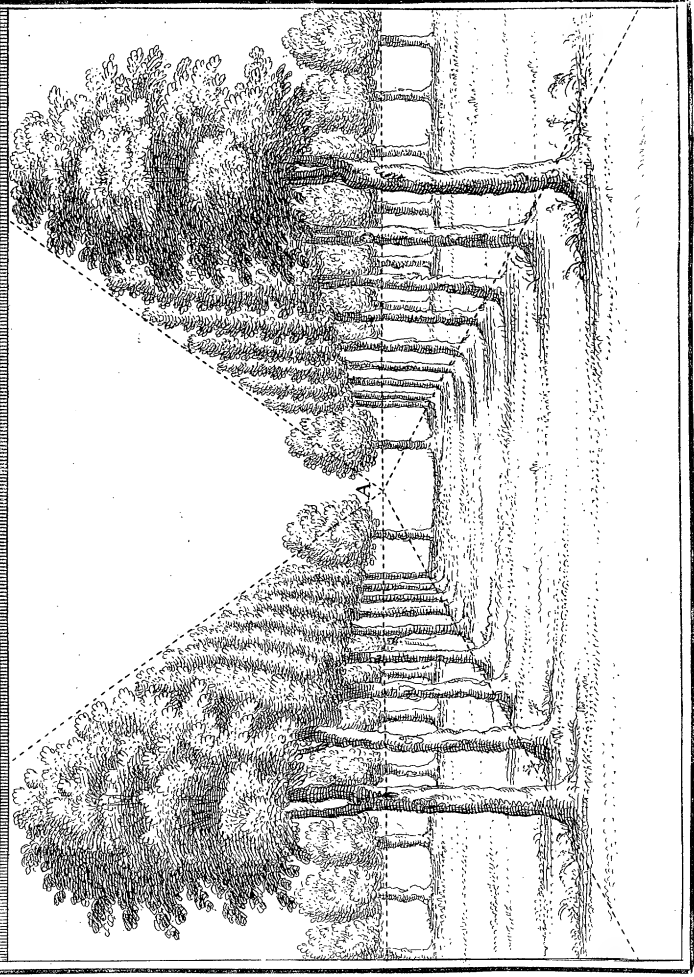
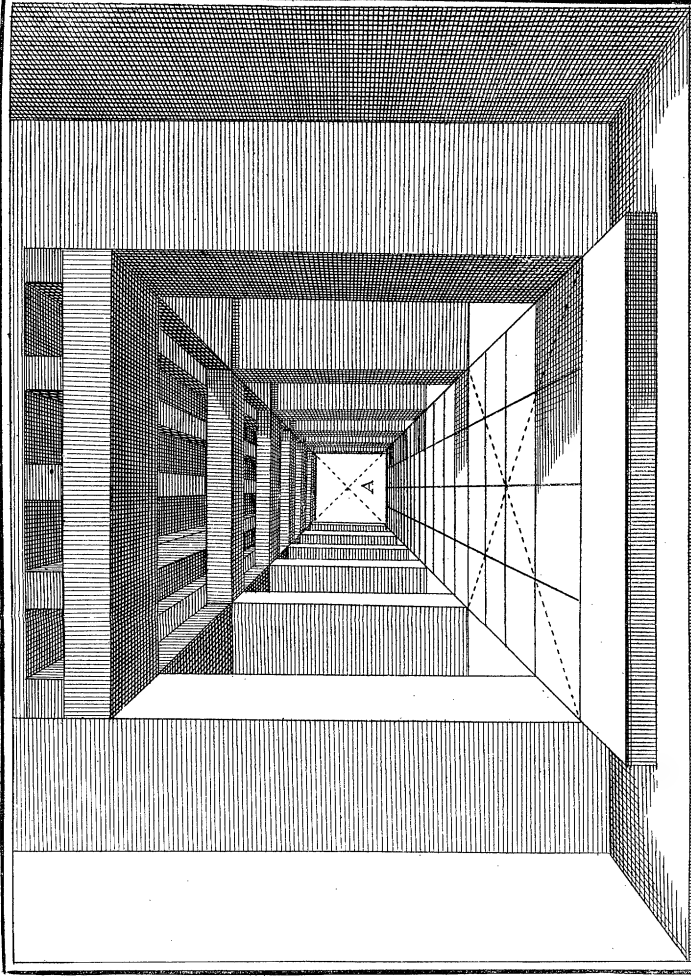


Fig. 4.

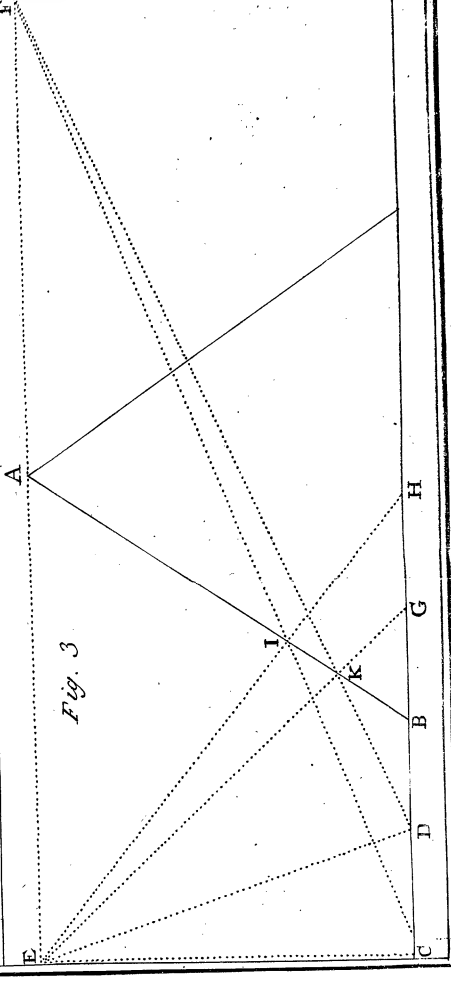
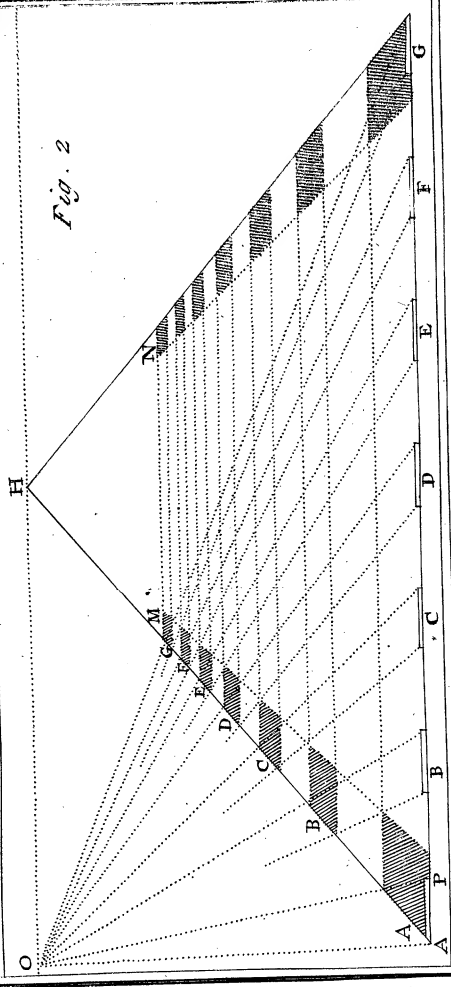
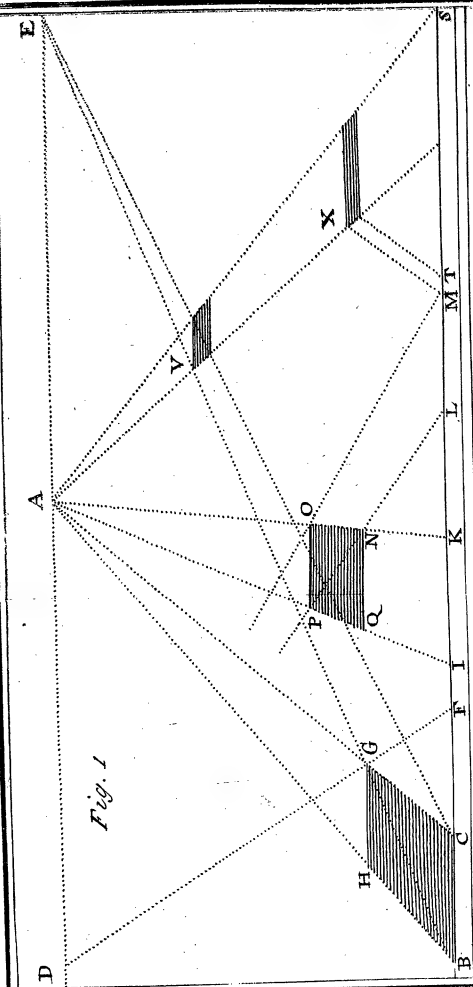














## P E R

### *Definitions in Perspective.*

ICHNOGRAPHY is the figure of the plat-form in *Perspective*, or the plan any thing is to be raised upon: thus ABCD is the *ichnography* or plan of a square body. See *Perspective*, plate fig. 1.

ORTHOGRAPHY in *Perspective*, is the figure of the front or fore-side of an object, as an house, &c. Or it is the figure of an object, as an house, &c. directly opposite to the eye. Thus EFGH is the *orthography* or fore-part of a cube or house. As the *ichnography* represents the plane, the *orthography* represents the side opposite to the eye. See *Perspective*, plate 2. fig. 2.

SCENOGRAPHY is what exhibits the object quite raised and perfect, with all its diminutions and shadows; both in front, the sides which may be seen, and top: thus IKLMNOP is a *scenography*, or perfect cube. This is the whole, and comprehends all the other parts. See *Perspective*, plate fig. 3.

*Why objects appear the smaller, as they are at a greater distance.*

*Things appear according to the angle of the eye wherein they are seen, and this angle is taken at the eye, where the lines terminating the objects meet.*

The eye A for instance, viewing the object BC, will draw the rays AB and AC, which give the angle BAC; so that an object viewed under a greater angle will appear large, and another under a lesser angle, little.

Now tis certain, that among equal objects those at the greatest distance will appear under the smallest angle, and consequently in all *perspectives* the remotest objects must be made the smallest: as for example, if the eye be in A, the object BC which is the nearest, will appear the biggest, because seen under the greatest angle; and the second, third, fourth, and fifth objects, will all appear smaller and smaller, though really all equal; inasmuch as the angles diminish in proportion as the objects recede.

If the eye were removed into M, KL would appear the largest, and BC in this latter case no bigger than NO. See fig. 1.

The second figure is a sequel of what we have advanced: for supposing the objects to appear such as is the angle they are seen in, it follows, that if several lines be drawn between the sides of the same triangle, they will all appear equal: thus all the lines comprized between the sides ON, OP, of the triangle NOP, will appear equal to each other, and as objects comprehended under the same angle seem equal, so all comprehended under a greater angle, seem greater, and all under a smaller, smaller. See fig. 2.

Thus much being supposed; if there be a number of columns or pilasters to be ranged in *perspective*, on each side of

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a Hall or Church, they must of necessity be all made under the same angle, and all tend towards one common point in the horizon O: as for instance, the eye being placed in A, viewing the first object D E; if from the points D E you draw the visual rays D O, E O, they will make the triangle D O E, which will include the columns D E, F G, H I, K L, M N, so as they will all appear equal. *Fig. 3.*

What has been said of the sides, is likewise to be understood of the cielings and pavements; the diminutions of the angles of remote objects, placed either above or below, following the same rule as those placed laterally.

There is therefore no need of adding any thing farther, unless this, that you take care that there be as many squares or divisions between the remotest objects, as between the nearest; for in that case, though distant objects be the closer, as they are further from us, they will appear in some measure to preserve their distance. Thus in B C D E, the interval between the four nearest columns, there are sixteen squares, and no fewer than sixteen between the four remotest K L, M N. *Fig. 4.*

It follows from what has been said, that if you join two triangles as in the last figure but one for the sides, and two others of the last for the tops and bottoms of an object, all four will terminate in one single point A, which is the point of sight wherein all the visual rays meet.

And this will give a proof of what we have advanced, *viz.* that objects diminish as they remove, the lower rising, the upper falling, and the lateral closing or approaching: an example of all which is given in figure I. which exhibits as it were depths and distances, falling back and receding from us, though all equally near the eye. *See plate.*

The trees being ranged by the same law, have the same effect as the columns, &c. for being all comprehended in the same angle, and the two rows having each its own angle, and the angles all meeting in a point A, they form a third, which is the earth, and a fourth, which if you please is the air; and thus afford an elegant prospect.

### I. *Of the measures upon the base in perspective.*

By the base line alone any depth may be given, and in any place at pleasure; without the use of squares; which is a very expeditious way, though somewhat difficult to learn.

I shall however endeavour to make it understood, by reason that I shall frequently make use of it.

As for example, suppose the base line B S, the point of view A, and the points of distance D E; if now you would make a plan of a cube B C, draw two occult or dotted lines from the extremes B C to the point of sight; then to give the breadth,  
take

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take the same measure  $BC$ , and set it off on the terrestrial line  $CF$ , and from  $F$  draw a line to the point of distance  $D$ ; and where this line intersects the first ray  $C$  in the point  $G$ , will be the diminution of the plan of the cube  $BHG C$ .

If you would have an object farther towards the middle, take the breadth, and the distance of the base line, as  $IK$ ; and to have the depth, set it as you would have it on the same base as  $LM$ , and its width both on  $LM$ . Then from  $L$  and  $M$  draw occult lines to the point of distance  $D$ , and from the points  $NO$ , where those lines intersect the ray  $K$ , draw parallels to the terrestrial line, and you will have the square  $QPON$ .

After the same manner you may set off the other side of the square which should be on the base, as  $BHG C$  is here transferred to  $V$ . The points  $M$  and  $T$ , which are only two feet from the point  $S$ , afford a very narrow figure in  $X$ , as being very near.

### *2. Of the base line, and a single point of distance.*

Since the depths and widths may be had by the means of this base line, there is no need of any further trouble in making of squares; as shall be shewn in this example.

Suppose a row of trees or columns is to be made on each side; on the base line lay down the place, and the distance between them, with their breadth or diameters, as  $ABCDEFG$ ; then laying a ruler from the point of distance  $O$ , to each of the points  $ABCDEFG$ , the intersections it makes on the visual ray  $AH$ , will be the bounds of the objects desired. *Fig. 2.*

To set them off on the other side upon the ray  $GH$ , set one foot of the compasses upon the point of the eye  $H$ , and with the other strike an arch; the point wherein this cuts the ray  $GH$ , will be the corresponding bound.

Thus  $M$  will be the same with  $N$ , and so of the rest, through which drawing parallels, you will have the breadths.

And as for the length, you may make it at pleasure: setting it off from  $A$ , as for instance, to  $P$ , and then from  $P$  drawing a line to  $H$ , and where this cuts the other parallels, will be formed the plan required: which you may make either round or square.

### *3. Not to deceive one's self in the measures.*

Never put any objects that are intended to be within the plan on the side of the point of distance, where you are to draw lines for the management of the depth.

Thus, suppose  $AB$  the visual ray, whereon the measures are to be marked; if you would produce the points  $C$  and  $D$  thro' the same, don't draw the lines from the point of distance  $E$ , but from that opposite thereto,  $F$ : or if  $C$  and  $D$  were on the inside, as  $G$  and  $H$  are, you should not draw from the point  $F$ , but from  $E$ ; by reason that the line of intersection is found between

## P E R

tween the two; consequently the two will cut each other in the same points I K. See fig. 3,

### *Of Planes viewed directly, or in front.*

From the third and fourth articles preceding, and the elevations that follow, it will appear that my intention is not to use geometrical plans, in order to the drawing of perspectives: that being a double labour, and there being very few painters who would give themselves the trouble, since I teach them to do the same thing by the use of the terrestrial line.

But as there is no rule so general, but has its exceptions, so there are certain figures that cannot be put in *perspective* without the use of such plans: besides the confusion a man would be under, should a plane be given him to put in perspective, if he had not been instructed how to proceed.

On these considerations I have been induced to give the following rules; which may suffice to shew how any plane that can be required, or even imagined, may be put in *perspective*.

#### 1. *To shorten or diminish a SQUARE. See plate, fig. 1.*

As A B C D fig. 1. From A and B to the point of sight E, draw the lines A E, B E; and from the same angles A and B draw two diagonals F B, A G; and the points H and I, where they intersect the rays A E and B E, will give the square A B C D, diminished in A H I B.

To do it without the geometrical plan, draw a line from B to F, or from A to G, or set off the line A B on the terrestrial line, as in B K; and from K draw another line to F, which will give the same intersection I on the ray B E.

#### 2. *To diminish a square viewed by the angle D. See plate, fig. 2.*

Having described the plane A B C D, draw a line to touch or raise the angle B, and falling perpendicularly on B D.

This being continued as a base line, lay your ruler on the side of the square A D and D C, and where the ruler cuts the terrestrial line make the points H, I.

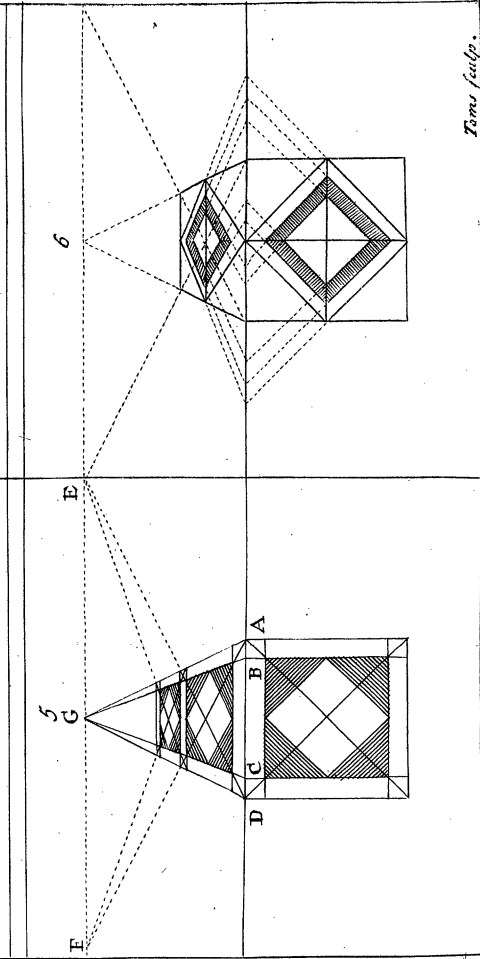
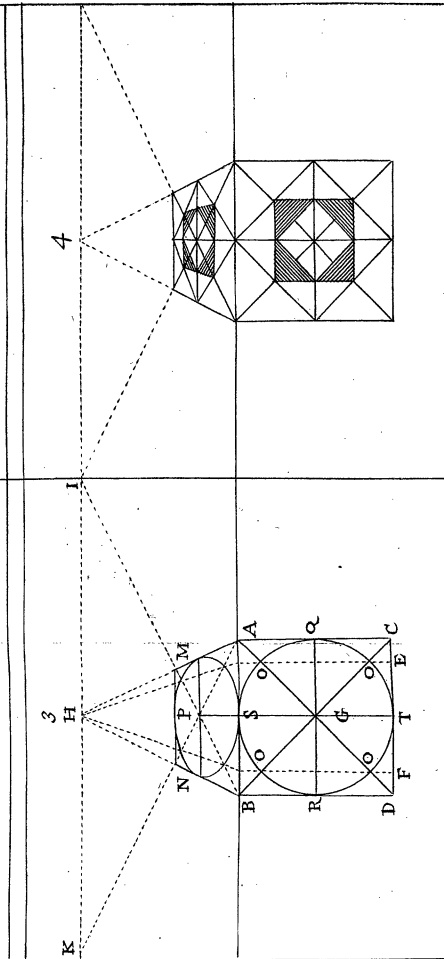
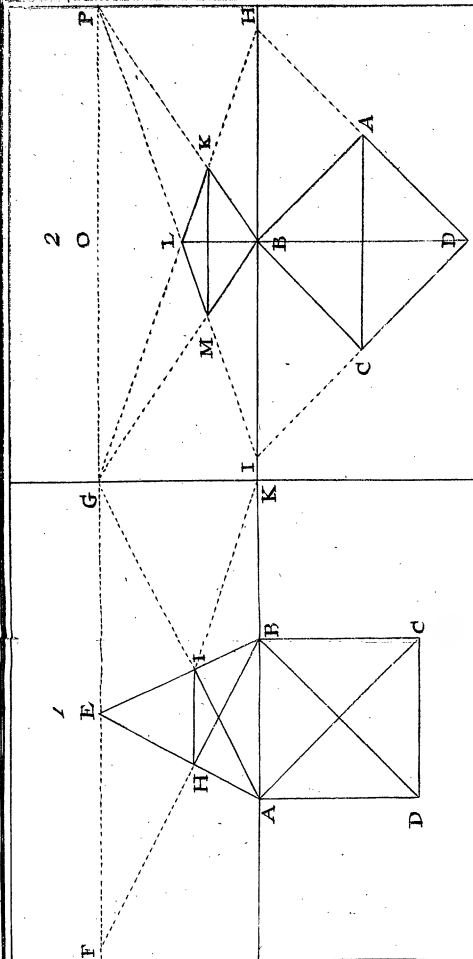
Then from H and B draw lines to the point of distance P, and from I draw a line to the other point of distance G; and in the intersection of those lines, make points, which will give you the square K L M B.

To do without the plan: set off the diameter each way from the middle point B, as to H and I. But in either case no line is to be drawn to the point of sight O.

#### 3. *To diminish a CIRCLE. See plate, fig. 3.*

Draw a square, A B C D about it, and from the angles A D and C B draw diagonals, dividing the circle into eight parts, and through the points where they cut it O O, draw lines from the base line perpendicular to D E F.

Then draw two diagonals Q R, S P, intersecting each other at right angles in the centre G. Having







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Having thus disposed the plan, draw lines from all the perpendiculars to the point of sight H; and where they are intersected by the diagonals A K and B I, make points; the two last of which, M, N, give the square which is to be divided into four by diagonals, intersecting each other in the point P.

In the last place, from the extremes of this cross, draw curve lines through the said points, which will give the form of the circle in *perspective*.

This method may serve for small circles, but for large ones there is another method more exact.

4. Figure the fourth is compounded of the two first, which is all that needs to be said about it.

5. This fifth figure also depends on the two first, only here is a list or border going round, which the others have not.

To put the list in *perspective* from the four rays A, B, C, D, draw lines from the point of sight G, and where the inner rays B, C intersect the diagonals D F and D E, draw parallels to the base line; and you will have your desire.

6. The sixth figure is the same as the second, except that it is surrounded with two borders.

PERSPECTIVE in painting, is used for a kind of picture, or *painting*, frequently seen in gardens, and at the ends of galleries; designed expressly to deceive the sight, by representing the continuation of an alley, a building, a landskip, or the like.

Of gardens in *perspective*, see GARDEN.

Of rows of trees in *perspective*, see ROWS.

Shadows in *perspective*, see SHADOW.

Streets in *perspective*, see STREET.

Walks in *perspective*, see WALK.

PERSUASION is represented in *Painting*, &c. by a fantastical woman, a tongue fastened to her head-attire, with an eye over it; she seems whimsical, and is tied round with cords, with an animal with three heads.

The tongue denotes its being the instrument of *persuasion*, the eye, exercise and art, contributing to *persuasion*; the cords, force of eloquence, binding up the will; the animals signify three things, to insinuate by the fawning dog, docility; by the ape, attention; by the cat, diligence.

PIETRO PERUGINO, born in the year 1446, scholar of *Andrea Verocchio*, lived at *Florence* and *Siena*, excelled in history painting, died in 1574, aged 78 years.

BALDASSAR PERUZZI *da Siena*, born in the year 1500, lived at *Rome*, excelled in history and architecture, died in 1536, aged 36 years.

**HB** HISBEL PEUN, an engraver of *Norimberg*, called *Hisbin*, he used this mark from the year 1513 to 1549. Hans

## P H O

*Hans* (or *John*) *Sebald Beham* also used the same mark.

PEWTER is a mixture of lead and tin, and has sometimes in it, for the better hardening of it, and keeping it together, a small quantity of *brass* or *copper*.

P. F. stands for *Paul Farinati* of *Verona*, painter and inventor.

P. H. signifies *Peter Hys*, in certain pieces of devotion.

Phil. Th. 1589, stands for *Philip Thommasini*.

P. *John Sebald Beham*, see letter B, and the letters V. P.

Pi. Ss. Bart. stands for *Peter Santi Bartoli*, engraver of *Perugini* in *Rome*.

PHILOSOPHY is represented in *Painting*, &c. by a woman, her eyes sparkling and vivid, rosy cheeks, a vigorous constitution, though pretty old, and in grave habit.

Her venerable aspect denotes respect, due to her as the mother of liberal arts; her books and sceptre, that persons of quality ought not to despise this queen; the  $\odot$  upon her breast signifies theory, and letter  $\Pi$  on the bottom of her garment, practice.

PHLEGM, is represented a gross man, sitting in a fur gown, clapping both hands into his bosom, his head one side bound up with a black cloth, almost covering his eyes, a tortoise by him.

His grossness proceeds from coldness and moisture; the fur of the otter, it being a flegmatic animal; his head inclined; his dulness like the tortoise by his side, because it is a slow creature.

PHOEBUS, or SOL, *i. e.* the SUN, was represented by the statue of a man, with his head half shaven.

*By the head half shaven is intimated, that though his beauty or shining may be clouded for a time, yet that he will return, and beautify the same with his pristine brightness; as the growing of the hairs, which (signify his beams) to their full extent and perfection again, may denote.*

*Lactantius* relates, that *Phæbus*, or *Apollo*, was the chiefest god of the *Persians*, who described him as follows; in the shape of a man, dressed in the *Persian* habit, and with the head of a lion, wearing on it such ornaments as the *Persian* women used, holding by force a white cow by the horns.

*By the head of the lion was signified the dominion of the sun in the sign Leo; the cow represents the moon, whose exaltation is in Taurus, and his forcibly holding her by the horns, the eclipse of the moon, which she cannot avoid.*

*Macrobius* says, that there was found in *Assyria* the statue of *Phæbus*, *Apollo*, &c. the father of *Æsculapius*, of polished gold, in the form of a young man, and beardless, who stretching out his arms, held in his right hand a coachman's whip, and in his left a thunderbolt, with some ears of corn.

The *Lacedæmonians* painted *Apollo* with four hands, and as many ears.

By

## P H O

*By which they intimated the prudence and judgment of God, he being ready and quick to hear, but slow to speak; and from hence grew that proverb among the Grecians.*

*Eusebius* relates, that in a city of *Egypt* called *Elephantinopolis*, the image of *Apollo* was made in the shape of a man, as to his body, but with the head of a ram, with young and small horns; and his aspect of a bluish or cæpurean green, not unlike to that of the sea.

*The head of the ram signifies the sun's exaltation in the sign Aries; and the young horns, the change or new of the moon, made by her conjunction with the sun, in which she looks bluish.*

*Eusebius* relates, that in *Egypt* the image of *Sol* was set in a ship, carried up and supported by a *crocodile*; and that the *Egyptians* (before the invention of letters) framed the shape of the sun by a sceptre, on the top of which was an eye artificially engraven.

*The sceptre signified government, the eye intimated the power of beholding and overseeing all things.*

*Martianus* describes the image of the *SUN*, in the form of a man, wearing on his head a royal and gorgeous crown, incased with many precious gems, three of which adorn his forehead, six his temples, and three other the hindermost part of the crown; his hair hanging down in tresses, appearing like refined gold, and his countenance wholly like flame; his garment thin, and wrought with fine purple and gold; holding in his right hand a shield, and in his left hand a flaming firebrand; and two wings on his feet, beset with fiery carbuncles.

*Herodotus* writes, that the *Phœnicians* had the statue of the *Sun* made of black stone, large and spacious at the bottom, but sharp and narrow at the top, and boasted that they had this from heaven.

*Pausanias* writes, that there was found in *Patra*, a city of *Arcadia*, the statue of *Apollo* in the form of an ox or cow.

*Lucian* writes, that the *Assyrians* represented him with a long beard (intimating his perfection) having a shield on his breast, holding in his right hand a spear, at the top of which was *Victoria*; and in his left *anthos*, or the *sun-flower*: his body was covered with a garment on which was depicted the head of *Medusa*, from which hung dangling many swarms of snakes; on the one side of him an *eagle* flying, and on the other side a *nymph*.

*Apollo* is also drawn as a young man crowned with laurel, having long, curl'd, golden hair, clad in a purple robe, holding a silver bow in his hand, and sitting on a throne of emeralds; and at other times standing on the serpent *Python*, with this motto, *Opifer per orbem dicor*.

## P H Y

PHYSICK, is represented in *Painting*, &c. by a woman of full age, with a garland of laurel, a cock in one hand, and a knotty staff, round which a serpent is twisted.

Her age shews that then a man is either a fool or a physician; the laurel denotes its great use in *physick*; the cock, vigilance, for a physician that administers ought to be up at all hours; the serpent, because by casting her skin she is renewed, so do men, being cured, renew their strength.

PHYSIOGNOMY [*φυσιογνωμία* of φύσις nature, and γνώμη opinion] is a *Greek* word, signifying the rule or law of nature, by which the affections of the soul have relation to the form of the body: so that there are fixed and permanent signs which discover the passions of the soul; that is to say, those which reside in the sensitive parts thereof.

It is, says *Monf. Le Brun*, the opinion of some naturalists who have written of *Physiognomy*, that the affections of the soul do follow the temperament of the body, and that the external characters are certain signs of the affections of the soul; so that by the form of every creature, its humours and tempers may be known.

As for example; the *lion* is robust and sinewy, which intimates that he is strong; the *leopard* supple and delicate, and likewise cunning and treacherous; the bear is savage, wild and terrible, and he is no less cruel; so that the nature of every animal being described by its external form, the *Physiognomists* say, that if a man happens to have any part of his body resembling that of a brute, we may from such part draw conjectures of his inclinations.

Some again say, that this science may be exercised by dissimilitude and contraries.

As for example; if the harshness of the hair be a sign of a rough and savage nature, a soft hair indicates a nature gentle and tender; also if the breast being covered with thick hair, is a sign of a hot, cholerick nature, that which is without hair shews mildness and sweetness of temper.

Others again say, that to understand what are the parts or signs which mark the affections of animals, we must make the following distinction, *i. e.* that some are *proper*, and others are *common*; the *proper* are particular to a single species; the *common* in several kinds; as lasciviousness, though it be most predominant in goats, asses, and swine, yet other animals are not without it.

Therefore to know the proper sign, we must consider one kind of animal, universally subject to the same passion; and afterwards another kind, in which this passion is to be found in but some particulars.

Thus

## P H Y

Thus for a sign of strength, we must consider all the species of animals, as the lion, bull, horse, boar, &c. and if the sign which is in the lion, be also in these other strong creatures, and that weak animals have it not, this must be acknowledged to be a sign of strength.

Some say it is a sign of strength to have the extremities large, as the lion has, but this is doubtful; some other strong animals, as the bull, horse, &c. having them not large, but very finewy, and well jointed.

Some say an animal has divers affections: as for example; the lion is valiant, strong, and cholerick; and he having a high front, and large extremities, to distinguish the sign of valour, we must observe if bulls, and other strong animals, have both these signs; and if such other strong animals have not a high front, we must say consequently, that a high front is a sign of valour, and large extremities a sign of strength.

But it is more to our purpose to reduce it to what may be necessary to *Painters*; for though they say that the gesture of the body is one of the most considerable signs which mark the dispositions of the mind; yet we may content ourselves with those signs which we meet with only in the head; according to the saying of *Apuleius*, that the whole man shews himself in the head; and that if man is the epitome of the world, the head may well be called the epitome of the man; and animals being as different in their inclinations as men in their affections, we must first observe the inclinations which every animal has peculiar to its species, and then search in their *physiognomy* the parts which particularly mark certain predominating affections.

Swine, for example, are nasty, lascivious, gluttonous, and lazy; we must then observe what part marks gluttony, lasciviousness, and laziness; because a man may have some parts resembling those of a swine, and not have others: so that we must first know what parts are affected with certain inclinations.

In the second place, the resemblance and relation of the parts of a human face to that of a brute.

And lastly, we must know the sign which changes all the others, and increases or diminishes their force or vertue; which cannot be understood without demonstration of their figures.

Physiognomists observe, that animals who have the nose turned up are audacious; and audaciousness is, when a creature rashly undertakes the combat, not having strength to maintain it; so as that would be audaciousness in a sheep, which is valour in a lion.

The difference of a human face from that of brutes, is, that man hath his eyes situate on one strait line passing cross to the ears.

## P I C

Brutes on the contrary, have their eyes drawn down toward the nose, more or less, according to their natural affections.

Secondly, man turns his eye-balls upwards, which *Brutes* cannot do, without turning up their noses, their eye-balls naturally moving downwards; insomuch that sometimes a great part of the white appears above them, but they never raise them upward.

Thirdly, the eye-brows of brutes never meet, their points always hanging down; but those of men meet in the middle of the forehead, and raise their points at the side of their nose.

They demonstrate by a triangle, that the impressions of the sentiments of animals are carried from the nose to the ear, and from thence to the heart, the lowest line whereof closes the angle with that from the nose: and when the line from the nose to the ear goes through the middle of the eye, and the line from the heart crosses the mouth, it is a sign that the animal is fierce, cruel, and blood thirsty.

There is another small triangle, the point of which is in the outward corner of the eye, from whence the line following that of the upper eye-lid, forms an angle with that which comes from the nose. When these two lines meet in the forehead, it is a sign of sagacity, as may be observed in elephants, camels, and apes: but if the angle meets upon the nose, it shews stupidity and weakness, as in asses and sheep, which is more or less according as the angle meets higher or lower.

These things (says the famous *Monf. Le Brun*) are all demonstrated by examples drawn after the life.

### Of PICTURE in general.

There are always four principal things to be considered in every picture, viz. 1. the *invention*; 2. the *proportion*; 3. the *colour*; and 4. the *life*.

1. *Invention*; this ought to be free, and flow from a general knowledge of antiquity, history, poetical fictions, geometrical conclusions, and optical considerations, according to its situation or aspect, either near or far off.

2. And this *invention* must express proper and fit things agreeing with the circumstances of *place, time, matter, and person*; and also having respect to the modes of habits peculiar to the country or people, whether *ancient* or *modern*.

3. As to *Proportion, Analogy, or Symmetry*; that is what limits each part to its proper size in respect to the whole.

*Whatsoever is different from this, is defective as to beauty, and may not improperly be called deformity.*

4. *Proportion* is called by artists the designing lines, which are first drawn, before the whole is painted.



## P I C

5. *These proportions, or lineal designs, draughts, and sketches may be called picture; which being well done, shew not only the shape, but also the intent.*

6. *The proportion of a Blackmoor may be drawn in lines only, and such as shall be like him: now this skill proceeds from the very highest principles of art.*

7. *Colour is that which makes the picture resemble what we design to imitate, by mixing of various colours together.*

8. *In making any thing apparent, it is necessary to express its opposite or contrary.*

9. *So lights and shadows forward set forth paintings outwards, as tho' you might take hold of them with your hand; blackness makes things seem farther off, and is used in things that are hollow, as caves, wells, &c. the more deep the more black.*

10. *Brightness exceeds, and is as light sparkling in splendor. It is used in the glory of angels, twinkling of gems, armour, vessels of gold and silver.*

11. *In painting of a man, each limb ought to be grac'd with its proper and lively colour; make the black entirely black, the white pure, intermixt with redness.*

12. *But to paint purely the exquisite beauty of a woman, can never be well done (except it be by a very ingenious artist indeed) her rare complexion being scarcely to be imitated by colour: there is no man really knows the exact mixture for such a countenance.*

13. *Life, or Motion, is that from which action or passion does result, which in coloured pictures is seen with a lively force of gesture and spirit.*

14. *Therefore to do this it is necessary that the artist be well acquainted with the nature, manners, and behaviour of men and women, as in anger, sadness, joy, earnestness, idleness, love, envy, fear, hope, despair, &c. every disturbance of the mind alters the countenance into several postures.*

15. *The head cast down indicates humility; cast back, arrogancy or scorn; hanging on the neck, languishing; stiff and sturdy, moroseness of mind.*

16. *The various postures of the head shew the passions; the countenance, the same; the eyes, the like; and in a word, all the other parts of the body contribute something, more or less, to the expressions of the said passions of the mind, as is easily to be observed in the life.*

*In excellent pieces you may view at a distance, read the mind of the artist in the formality of the story.*

17. *Lastly, you must always first conceive that in your mind which you would express in your work; that your endeavours*

being assisted with an intellectual energy, or power of operation, may at length render your productions perfect.

*The disposition of PICTURES.*

1. Antique works, as *grotesque*, may become a wall, the borders and freezes of other works; but if there be any draughts in figures to the life upon the wall, they will be best of black and white, or of one colour heightned; if they be naked, let them be as large as the place will allow; if of columns, aqueducts, arches, ruins, cataacts, let them be bold, high, and large of proportion.

2. Let the best pieces be placed to be seen with single lights, for so the shadows fall naturally, being always fitted to answer one light; and the more under or below the light, the better, especially in mens faces and larger pieces.

3. Let the porch, or entrance into the house, be set out with rustick figures and rural things.

4. Let the hall be adorned with shepherds, peasants, milk-maids, neat-herds, flocks of sheep, and the like, in their respective places, and proper attendants; as also fowls, fish, and the like.

5. Let the stair-case be set off with some admirable monument or building, either new or ruinous, to be seen and observed at a view, passing up; as let the cieling over the stair-case be painted with figures foreshortned, looking downwards out of clouds, with garlands and *cornucopia's*.

6. Let landskips, hunting, fishing, and fowling pieces, histories, and antiquities, be placed in the great chamber.

7. Place the pictures of the king and queen, or their coats of arms, in the dining-room, forbearing to place there any other pictures of the life, as not worthy to be their companions, unless at the lower end two or three of the chief nobility, as attendants on their royal persons; for want of which you may put in their places some of the nearest blood.

8. In the *inward*, or *withdrawing chambers*, place the draughts of the life of persons of honour, intimates or special friends and acquaintance, or of artists only.

9. In *banquetting rooms* place chearful and merry paintings, as of *Bacchus*, *Centaur*s, *Satyrs*, *Syrens*, and the like, but not any obscene pictures.

10. Histories, grave-stones, and the best works, become *galleries*, where every one may walk, and exercise their senses, in viewing, examining, delighting, judging, and censuring.

11. In *summer-houses* and *stone walks*, place castles, churches, or some fair buildings.

12. In *terraces* place boscase, and wild works.

## P I E

13. Over *chimney-pieces* place only *landskips*, for they chiefly adorn.

14. And in the *bed-chamber* place your own, your wife's and children's pictures, as only becoming the most private room, and your modesty, lest (if your wife be a beauty) some wanton and libidinous guest gaze too long on it, and commend the work for her sake.

15. In hanging your pictures, if they hang high above reach, let them incline a little forward at the top, because otherwise it is observ'd, that the visual beams of the eye, extending to the top of the picture, appear farther off, than those at the foot.

EDWARD PIERCE was a good history and landscape painter in the reigns of King *Charles I.* and *II.* He also drew architecture, perspective, &c. and was much esteemed in his time, little of his work now remains, the far greater part having been destroyed by the dreadful fire in 1666. it chiefly consisting in altar-pieces, cielings of churches and the like; of which last sort there is one yet remaining, done by him in *Covent-garden Church*; in which are to be found many admirable parts of a good pencil. He work'd some time for *Van Dyke*, and several pieces of his performance are to be seen at *Belvoir Castle* in *Leicestershire*, the noble seat of the Duke of *Rutland*. He died in *London* about 40 years ago, leaving behind two sons, who both became famous in their different ways; one was a most excellent carver in stone, as appears by a noble marble vase of his doing at *Hampton-Court*; there is a fine head of Mr. *Pierce* the father, in Mr. *Seamer* a goldsmith's possession, which was painted by *Dobson*.

PIETY is represented [*in painting, &c.*] by a woman of a very pale complexion, a *Roman* nose, flame instead of locks, she is winged, with her left-hand towards her heart, in her right a cornucopia pouring out things necessary for life.

The wings declare her celerity; the flames the spirit enflamed with the love of God; the left-hand that a pious man gives proofs of it without ostentation; the horn of plenty, the undervaluing of worldly riches, and a liberal assistance to the poor.

PIETY is also represented in painting, in the form of a lady of a sober countenance; holding in her right-hand stretch'd out a sword over an altar; and in her left-hand a stork; and by her side an elephant and a child.

*The stork is so call'd of σὶργον, the reciprocal or mutual love of parents, of whom this bird was ever an emblem, for the love and care she hath of her parents being old; the elephant is said to worship towards the rising sun.*

## P I P

### *To make French PINK.*

This is usually made with the white of *Troye*, which is otherwise call'd *Spanish white* or *French* and *Avignon* berries; but it is apt to change colour; so that it will be better to make it of *white-lead* or *cerufs*, ground very fine on a marble. When it is ground, take it up with a wooden *spatula*, and set it to dry in the shady part of a room; then bruise *French berries* in a marble mortar with a wooden pestle, and boil them in a lidded earthen pot, till the third part or more be evaporated.

Strain this decoction through a linnen cloth, and put into it the quantity of two or three small nuts of *alum*, to hinder it from changing colour; when it is dissolv'd, dilute the *white* with this decoction, to the consistence of a pretty thick pap, or rather paste, which you are to work well between your hands, and make up into trochisks, and lay them to dry in an airy room: when they are dry, dilute them again two or three times with the same decoction, according as you would have your pink bright or deep, and set it to dry each time.

Take notice that the liquor or decoction must be warm, when the paste is diluted with it, and that you must make it a-fresh, when the first is tainted; taking care never to touch it with iron or steel; but always using a wooden spatula.

SEBASTIANO *del PIOMBO*, born in the year 1485, scholar of *Gio Bellini*, and studied under *Giorgione*, liv'd at *Venice* and *Rome*, excell'd in history and portraits, died in 1547, aged 62 years.

### PIONY [*in miniature*] to paint.

Let the first lay be of *Indian lake* and *white* of a pretty good body; and then shade with a lesser quantity of *white*, which however must be quite dissolv'd in the deepest places. When this has been done, finish with strokes of the same colour; charging it strongly with gum in the darkest shade, and heightening the lights and the edges of the brightest leaves, with *white* and a little *lake*: you must also express small veins just like the strokes of hatching; but they must appear more.

The green of this flower must be of the sea-kind and shaded with *Iris*.

FRANCIS LE PIPER was son of a *Kentish* gentleman, descended from a *Walloon* family; being of a gay and facetious humour, his manner was humourous or comical. He delighted in drawing ugly faces, and had a talent particular for it, that he would by a transient view of and remarkable face of man or woman that he met in the street, retain the likeness so exact in his memory, that when he express'd it in the draught, the spectator,

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rator, who knew the original, would have thought the person had sat several times for it.

'Tis said of him he would steal a face ; and a man that was not handsome enough to desire to see his picture, sat in danger in his company.

The greatest curiosities that he sought after, were the works of the painters, which he examined every where with pleasure and judgment, and formed to him a manner of design which no man in that kind ever excelled, and perhaps never equalled. Having a good estate of his own, and being generous, as most men of genius are, he would never take any thing for his drawing ; he drew them commonly over a bottle, which he loved so well, that he spent great part of his hours of pleasure in a tavern.

This was the occasion some of his best pieces, especially such as are as large as the life, are in those houses, particularly at Mr. *Holms's*, at the *Mitre-Tavern* in *Stocks-Market* ; where there is a room called the *Amsterdam*, which is adorned with his pictures in black and white. The room takes its name from his pieces, which represent a Jesuit, a Quaker preaching, and some other preachers of most religions that were liable to be exposed ; was called the *Amsterdam*, as containing an image of almost as many religions as are professed in that free city. The two most remarkable figures are the Jesuit and the Quaker ; wherein the differing passions of those two sects are so admirably well expressed, that there appears no want of colours to render them lively and perfect. He drew also many merry pieces for one Mr. *Shepherd* a vintner, at the *Bell* in *Westminster* ; which Mr. *Holms* purchased, to make his collection of his master's pieces more compleat, and the benefit of shewing them has not been a little advantageous to his house. Mr. *Le Piper* drew another famous droll piece, representing a constable with his mirmydons, in very natural and diverting postures. He seldom designed after the life, and neglected the part of colouring : but yet he sometimes, tho' very rarely, coloured some of his pieces, and as we are informed was not very unsuccessful in it.

He drew the pictures of several of his friends in black and white, and maintained a character of truth, which shewed that if he had thought fit to bestow so much time as was necessary to perfect himself in colouring, he would have rivalled the best of our portrait painters in their reputations.

Towards the latter end of his life, having brought his circumstances into a narrower compass than he found them on his father's death, he sometimes took money. He drew some designs for *Isaac Becket*, who performed them in *mezzotinto*. Those  
drafts

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drafts were generally done at a tavern, and whenever he pleased, he would draw enough in half an hour to furnish *Becket* a whole week's work.

His invention was fruitful, and his drawing bold and true.

He understood landskip painting, and performed in it to perfection. He was particularly a great master in perspective; in designing of his landscapes, he had a manner peculiar to himself: he always carried a long book about him like a musick-book, which when he had a mind to draw, he opened, and looking thro' it, made the lower corner of the middle of the book his point of sight, by which when he had formed his view, he directed his perspective, and finished his picture.

His hand was ready, his strokes bold, and his etching short.

He drew several of the Grand Signiors heads for Sir *Paul Rycaut's* history of the *Turks*, which were engraven by Mr. *Elder*.

In the latter part of his life, he apply'd himself to the study and practice of modelling in wax, in *Basso Relievo*, in which manner he did abundance of things with very good success.

Being one time at a tavern, with Mr. *Faithorn*, Mr. *Sturt* the graver, and others, he sketched a head with a coal, and gave it to Mr. *Faithorn*, who touch'd upon it: in the mean time Mr. *Le Piper* drew another upon another trencher, and exchanged with Mr. *Faithorn* for that which he had touch'd.

They did thus ten times, and between them wrought up the heads to such a height of force, that nothing could be better done of the kind.

These trenchers are still extant, but we could not hear in whose hands they are at present.

He died in *Aldermanbury* about 40 years ago, yet lives still in the memory of his acquaintance, with the character of an accomplished gentleman, and a great master in his art. His pieces are scattered up and down, chiefly in this city, and the best and most of them are in the hands of Mr. *Le Piper* his brother, a merchant of *London*.

His corps was carried from *Christ's-church* hospital, to the church of *St. Mary Magdalen Bermondsey* in *Southwark*, where 'twas buried in a vault belonging to his family.

*To make a PLANT grow in two or three hours.*

Take ashes of moss, and moisten them with the juice of an old dunghil, (being press'd out and strain'd) then dry them a little, and moisten them as before; do this four or five times, put this mixture, not being very dry, nor very moist, into an earthen vessel, and in it set seeds of lettuce, purslain or parsley, (for they will grow sooner than other feeds) being first impreg-  
nated.

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nated with the essence of a vegetable of its own species (some say the juice of the same plant, but especially the spirit will do instead of the essence) till they begin to sprout forth; which then put into the said earth, with that end upwards which sprouts.

Set the vessel into a gentle heat, and when it begins to dry, moisten it with the said juice of dung; thus you may have a sallet while supper is making ready.

*To reduce a whole vegetable into a liquor, which may be call'd the essence thereof.*

Take the whole plant with flowers and roots, bruise them in a mortar, put all into a large glass vessel, (or a wooden one, which is better) so that two or three parts may be empty; cover it exceeding close, and let it stand in putrefaction, in a moderate heat for a year, and it will all be turned into water.

*To make the lively form and idea of any plant appear in a glass.*

Take the water above-mentioned, distil it in a good glass in an ash heat, and there will come forth a water and oil, and in the upper part of the vessel a volatile salt: separate the oil, and keep it by itself: dissolve the volatile salt in the water, and purify it by filtering and coagulating.

Imbibe this purified salt with the said oils, until it will imbibe no more: digest them well together for a month in a vessel hermetically sealed; and so you will have a most subtle essence, which being held over a gentle heat, or the flame of a candle, by this means it may be made hot, and you will see the fine substance (which is like the impalpable ashes or salt) send forth from the bottom of the glass, the manifest form and shape of the vegetable, vegetating and growing by little and little, and putting on so fully the form of stalks, leaves and flowers, in so perfect and natural a manner, that you would believe the same to be real; when in reality it is only the spiritual idea or form, arising with the spiritual essence of the plant: this, were it join'd with its proper earth, would take to itself a more solid body.

But as soon as the vessel or glass is remov'd from the fire, this image or representation vanishes, becoming a chaos and confus'd matter, returning to its sediment, from whence it arose.

*Another way to make the essence of a PLANT.*

Put the herbs, flowers, seeds, spices, &c. into rectified spirit of wine; extract a very strong and deep tincture; upon which put strong oil of salt, and digest in *balneo* till an oil swim above, which separate; or else draw off the spirit of wine in *balneo*, and the oil or essence will remain at bottom: but



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but before the spirit of wine is abstracted, the oil or essence will be blood-red.

*Another way to make the true essence, or rather quintessence.*

Make the water, oil and volatile salt, as before is taught, and from the fæces extract the fixed salt, which purify according to art; which salt resolve in a cellar upon a marble stone to an oil; which is that call'd *per deliquium*: filtre it and evaporate, till the salt is as white as snow, with these salts imbibe as much of the oil, as you can make it receive; then digest it till the oil will not separate from the salt, but become a fixt powder melting with an easy heat.

PLEASURE is represented [*in painting, &c.*] by a youth crowned with a myrtle garland, half clothed, winged, a harp in his hand, and buskins on his legs.

The myrtle denotes the same being dedicated to *Venus*, wherewith *Paris* was crowned when he past judgment in favour of her; his wings, that nothing vanishes sooner than pleasure; the harp the tickling of his senses with musick; his buskins inconstancy, and his under-valuing gold to satiate his appetite.

PLENTY is represented [*in painting, &c.*] by a beautiful lady crowned with a garland, in a green gown embroidered, with a cornucopia in her hand; she is no less amiable for her beauty, than her contrary, want, is deformed and odious.

The garland denotes chearfulness, and the mirth that does inseparably accompany her; the cornucopia is an emblem of the affluence of all things necessary for human life.

*Plato* tells us, that PLUTO sits (in the lower region) majestically in a chair of state, holding in one hand a black imperial sceptre, having his head adorn'd with a stately crown; that on his left-hand sits his wife *Proserpine*, attended with many furies and evil spirits, and at whose feet lies chained the dog *Cerberus*.

He is also painted with long curl'd black hair; clad in a robe of cloth of gold.

He is also by the antients, painted riding in a chariot, drawn by four furious black horses, from whose fiery nostrils proceeds thick and ill-favoured smoke.

Some represent him, with his head incircled with a garland of *cypress leaves*, others with those of *Narcissus*.

*The first shews sadness and horror, and are us'd at burials and about the dead: but the others are more grateful, and are us'd in memory of the untimely death of the youth Narcissus, kill'd by a wild boar.*

CORNELIUS POELENBURGH born in the year 1590, scholar of *Abraham Bloemart*, and studied at *Rome* and *Florence*;

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*rence*; liv'd at *Utrecht*, and in *England*, excell'd in naked-boys, landscapes, ruins and small figures, died in 1667, aged 77 years.

POETICAL FURY is represented [*in painting, &c.*] by a brisk young beau of a ruddy complexion, crowned with laurel bound about with ivy, in a writing posture, but turning his head back toward heaven.

The wings declare the quickness of his fancy, which soars aloft and carries an encomium with it, which still remain fresh and green as the laurel and ivy intimate; looking upwards, the ideas of super-natural things, which he writes down.

POETRY is represented [*in painting, &c.*] by a lady in a sky-coloured garments, with stars and wings on her head, a harp in her right-hand, crowned with laurel, and a swan at her feet.

The sky colours signify that none can excel in this art, if he be not endowed with extraordinary talents from heaven; the harp, because they us'd to make poetry and music to be in a harmonious consort; the crown shews that the poet's design is to be renowned; the swan is the emblem of musick; the starry robe divinity, as having its original from heaven.

POLISHERS and POLISHING; a polisher is an instrument call'd also a *burnisher*, us'd for polishing and burnishing gold, silver and other metals, when gilt or silver'd, and matters of other kinds proper to take polish.

*Gilders* use an iron polisher to prepare their metals before gilding, and the blood-stone to give them the bright polish after gilding.

The *polisher* us'd by the spur and bit-makers, &c. is part iron, part steel, and part wood. This instrument consists of an iron bar, with a wooden handle at one end, and a hook at the other, to fasten it to another piece of wood, held in the vice, while the workman is working.

In the middle of the bow within side, is what they properly call the polisher, which is a triangular piece of steel, with a tail, by which it is riveted to the bow.

A cutler's POLISHER, is a kind of wooden wheel or grinder, made of walnut-tree, about an inch in thickness, and of what diameter or largeness you please, this is turn'd by the great wheel; and it is with this they polish and smooth their works with *emery* and *putty*.

The polishers us'd by spectacle-makers, are pieces of wood a foot long, seven or eight inches broad, and an inch and a half thick, covered with old castor hat, whereon they polish the shell and horn frames their spectacle glasses are to be set in.

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**POLISHING LOOKING-GLASS.** After looking-glasses have been ground, they are to be polished, they still looking but something like a slate. The polishing is perform'd in the following manner: the plate is laid down on a stone plac'd horizontally, and, in a bed of plaister of *Paris* calcin'd and pulveriz'd very fine and sifted; which being made into a sort of paste by water, and plaister'd up the edges of the plate, dries and hardens, and so keeps it immoveable; then the workman fixing a strong bow of yew or some other tough wood, to a-board fixed up to the ceiling of the room, fixes also the other end into an hole made in a wooden paralleloepid of about four inches long, cover'd with a sort of coarse woollen cloth well drench'd with *Tripoly*, tempered with water, works it with this block and bow all over by strength of arm, till the plate has got a perfect politure.

**POLVERINE.** *Of the places whence Polverine, Rochetta, and Soda are gotten, which serve for making glass and crystal, and their differences.*

After having delivered the manner of making glass, it will be necessary to explain, whence the salt that serves to make it, is extracted, since that is the foundation of the art, and without it glass cannot be made, except it be with the sand we have mentioned elsewhere; which will do the business without any other help, because it contains in it a great quantity of nitre.

It is common to call all ashes or polverine, that is us'd to make glass, by the name of *Rochetta*; heretofore it us'd to be brought out of *Syria*, from the eastern parts of it, where it grew in great abundance: but at present it comes from *Alexandria*, from *Tripoli* and from *Spain*, where it equally abounds, but is somewhat different in quality: which we will here acquaint the reader with, for the sake of those that are curious and inquisitive. The *Polverine* and the *Rochetta* come from *Syria*, they are the ashes of a certain herb which grows there in great plenty, called *Kali*; the salt which is extracted both from the one and the other, is far whiter than that of *Soda*; hence the salt of it helps to make a very good crystal, but somewhat verging towards a sky-colour, the beauteousness whereof is owing to the oriental *Polverine* (or that of the *Levant*;) whereas that of *Soda*, which is more plentiful, makes the crystal more blue, and has not that shining brightness, nor the same whiteness and beauty.

The difference between the *Polverine* and *Rochetta*, although made of the same herb, comes from the methods of preparing them: all sorts of ashes which come from the *East* for making glass are called *Polverine*; because the ashes are truly pulverized

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verized or in powder: and on the contrary, the other is called by the name of *Rochetta*, because it is brought in hard lumps like stone. The glass-men know by experience that this last is better than the ashes: for those lumps when they are great and hard yield a whiter and sharper salt than the powder, or pieces that are less. We should be apt to think that might proceed from the difference of the plant, or from the different places where it grew, or from some sophisticated mixtures of heterogeneous salts, proceeding from salt sea-water, or other damps that might be mixt with it, and noxious to it, if we were not assured that it is the preparation only that makes its difference.

It is certain, that to extract a very sharp and poignant salt from *Rochetta*, there must be a great deal of care taken in its preparation: those who make it in the *Levant*, first of all make a lixivium of the ashes they have made, with which they sprinkle the herbs they are to burn, after having dried them, and thus continuing to sprinkle them each time with new lye, they make very sharp ashes, which congeal into great hard lumps as hard as flints, by reason of the abundance of salt, wherewith the herb is impregnated by the lixiviums; and it is hence that there is more salt extracted out of the *Rochetta*.

*Polverine*, on the contrary, has no such preparation; the herbs are only burnt on iron hurdles or bars; afterwards, when cooled, they are gathered up, and laid by, whence they have less salt than the *Rochetta*; but this salt has no less virtue or goodness. These two matters are now no more in use in *France*, as heretofore; but they use them still at *Muran*, where the *Venice* glass is made.

*Soda*, which comes from *Egypt* and *Spain*, derives its name from the abundance of salt it contains; it is made of the same herb as the *Polverine* and *Rochetta* of the *Levant*, that is, of the same sort and nature with that; and though this herb grows in great quantities in many places, and comes naturally amongst water, and commonly flourishes near lakes; yet it is planted on the banks of the *Mediterranean*, in *France*, *Spain*, and *Egypt*; where by reason of the heat of the climate it grows in great quantities: but it has the most sharpness, and is strongest in *Egypt*, where there is never any rain. It is green all the winter, but they commonly cut it in the middle of summer, when it is in its full vigour: after it has dried in the heat of the sun, they gather it in heaps, and burn it on hurdles or grates made of iron, the ashes falling through into a pit made underneath on purpose; there they grow into a hard mass or stone, and are gathered and laid up for use, and are called *Soda*, as *Lobel* affirms, and their salt alkali. This herb called by most *Kali*, has yet divers other names. The same *Lobel* calls it *Soda*; *Gesner*, *Alkali*; *Dodon*, *Salicornia*; *Thalius*, *Anthilcides*; *Merret*,

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*Merret*, *Kelp*; *Columna*, *Antillis* and also *Kali*; of whom this last says, he found it at *Naples*, and gives a description of it, and assures us of its fitness for making glass. In *Languedoc*, where it is found on the sea-shores, they call it flower of *crystal*; and in *France*, *Salsola*; which *Mattheolus* refutes in his apology against *Lusitanus*; who saw this plant grow at *Tergestum* in *Mauritania*; and that there grows a great quantity of it near *Salines de Trieste*, in the state of *Venice*; and, says, that the *Venetians* cover their glasses, which they transport beyond the seas, with this *Alga*.

The true name of this herb is *Kali*, there are several sorts of it, but most of it good for nothing, flying all away in smoke; as does the knotty sort of it, and thorny sorts of it, or *Kali Spinosum* which is found in several places about the river of *Thames*, and in other maritime places in *England*, which is the reason that the *English* never use it for glass: for if it be put upon an iron heated red-hot, it smokes all away, leaving little or no ashes thereon; and on the contrary, if that of the *Levant* be put upon the same iron, it will soon be converted the most part of it into a black and salt sand, contracting itself in burning like worms, flaming a long time and yields a very white and strong salt. The *Kali* therefore of the *Levant* is best of all, according to the sentiments of most authors; and that which is found in *Egypt*, which has long leaves and very hairy, has no less virtue.

*To extract the salt of Polverine, Rochetta, and Soda for making glass.*

Those who undertake to make glass, must begin by providing good *Rochetta* or *Soda*, to extract the alkali salt of it, which is the basis or foundation of their work: the best, and that which contains most salt, may be tried by touching it with the tongue, and tasting what salt it contains; but the surest way of all is to make an essay of them in a melting-pot, a thing common in this art, and which the workmen very well know.

To extract the salt of *Rochetta* or *Soda*, which is commonly in lumps, you must first reduce it into a fine powder: heretofore, stone mortars were in use for that end with iron pestles; after which they sifted it through a fine sieve, and putting the pieces that remained in lumps behind into the mortar to be pounded again, and so till the whole was sifted off; but at present we make use of mills, which do the business with more expedition and less charge; besides this way, it is immediately reduced and ground to fine powder, which is notwithstanding afterwards sifted, and the lumps that remain put into the mill again,

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again, until all be ground into a fine powder: for in this consists the art of extracting more or less salt.

And as salt cannot be extracted without the help of water, you must set up coppers with their furnaces like those of the dyers, bigger or less, according to the greater or less quantity of salt you design to make; then you must fill these coppers with fair water, and make a fire with dry wood, that you may not be molested by smoak, and when the water begins to boil, you must put in ten pound of tartar calcined to a white colour, (for reasons we will shew hereafter in the preparation of tartar,) to every hundred pound of *Soda* you put in, according to which proportion you are always to regulate yourself. Then you must stir it with a long wooden ladle, that it may dissolve apace; after that, put in as much powder of *Rochetta* or *Soda* as it can contain, regulating yourself according to the greatness of your coppers, and the quantity of water in them. You must continue the fire, and stirring with the wooden ladle in the copper, till all the *polverine* is incorporated with the water, and the salt extracted quite out of it. The water being one third part boiled away, you must fill your coppers again with fresh-water, and continue to make them boil till half be consumed; then the lye will be made, and the salt extracted.

Your lye thus being made, slacken your fire under the copper, and set in order as many earthen pans as you shall have occasion for, to contain it; those pans must be very well glazed, or first stand filled with common water for six days, then you must fill those pans with the lye and ashes together, with great brass ladles; then let them stand so six days, that the ashes may settle to the bottom, and the lye become clear. Then again pour that lye into other earthen pots, leaving the ashes behind, and let it stand two days longer, and the lye will become very limpid and clear, for all the earthy faeces will precipitate, and settle at the bottom. You must continue to do so three times, to have a most clear and limpid lye, which will yield a very fine and perfect salt; you might avoid these three times sifting it, if you filtered it off; but that would be too troublesome, by reason of the great quantity of water you would have to filter.

The coppers being empty, if there remain yet any materials to extract the salt from, you must fill them again with water, putting in each ten pound of tartar, as before, and after that a proportionable quantity of *Polverine* or *Soda*, and continue to work as we have explained, till all the salt be extracted, after which you must wash the coppers well with fair water, then fill them with the said refined and clarified lyes in the pans, which you must cause gently to boil to evaporate the water, till it begins to thicken and shoot its salt, which it commonly



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does in about twenty-four hours time, so that the salt begins to appear on the surface of the copper all white. Then you must take a great skimmer full of holes, and put it down to the bottom, and the salt will fall upon it; which operation must be repeated, letting the lye all drop again into the copper, before you remove the skimmer from it; then you must put this salt into the same earthen pans you made use of before, the better to drain the lye that remains, which must be saved, and put into the copper again; then dry the salt: continue this work till all the salt be gotten out of the copper.

I must here acquaint the reader, that he must make a gentle and easy fire as soon as the salt begins to shoot, for fear the salt should stick to the copper, which a great fire will cause it to do, and so burn it; which often happens to those that don't take such precaution.

This reason ought to oblige those who work in this art, to procure vessels well lined with lead, such as they use to boil alum in; besides, these lyes being sharp and corroding, destroy and consume the brass by degrees, or the moisture cankers it, and so it spoils the colour and beauty of the salt.

The salt in the earthen pans or pots being well drained, must be put into little wooden tubs or fats, the better to dry out all the moisture, according to the season wherein it was made; then beat it grossly, and put it into a furnace moderately heated, there gently to dry. It being thus, take it out of the furnace and pound it in a stone mortar, or grind it in a mill, and afterwards sift it through a fine sieve, the holes whereof are not bigger than grains of wheat: this salt being thus prepared, ought to be kept in a dry and convenient place, where there is no dust. See the articles FRIT and CRYSTAL.

The goodness of the salt depends very much on the tartar that is mixed in it, which serves not only to make the quantity the greater, by attracting more salt from the matter, but also to make it whiter too, and also makes the crystal whiter and more transparent; and by its means we commonly get 80 or 90 pound of salt from 300 pounds of good salt of *Polverine* of *Levant*, without which it could not be done.

Tartar is made by wine; it sticking round about the hogheads and pipes in little hard lumps, and never amongst the lees of the wine, which are always moist and at the bottom; that of red wine is extraordinary for this use, containing much more salt, and that more sharp than the tartar of white wine.

It must be calcined for the space of six hours, in the second sort of furnace we have mentioned, in a moderate heat, that all heterogeneous parts may be consumed, and that it may become whiter, and more easily dissolvable in water. Experience



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rience testifies that this way of calcining *tartar*, is better than when less time is bestow'd on it.

The secret manner some chymists proceed herein, shews us of how great importance it is for the *tartar* to be thoroughly dried; they powder it grossly, afterwards gently calcine it, or rather dry it in the furnace, on tin shovels, which makes it cream better than any other way.

By this preparation the *tartar* more thoroughly dissolves in the water, and you extract more easily, and in greater quantity, the salt of the *polverine*, or powder of *rochetta* or *soda*, for it opens the body of it; and by penetrating into it, becomes united perfectly with it, which would not otherwise arrive so well.

After the same manner the body of *nitre*, in making *aqua fortis* or spirit of salt, is opened by the alum and vitriol; it is for this reason also, that we have taught to dissolve the tartar in the water in the furnace, before you put in the *polverine* or *soda*.

*Another way to extract the salt of Polverine, or Rochetta, which makes crystal as fine and transparent as natural (or rock) crystal.*

This way of extracting the salt of *polverine* is far more laborious and troublesome than that taught before, and yields less salt, but it makes a very noble crystal, nay, finer than the natural; so that it is fit for the finest, most nice, and exquisite uses. To make it,

Take *polverine* of the *Levant* well searced, and put it into glass cucurbits, or bodies luted at the bottom, to the height of four inches; fill them with common water that is very clear; put them on a sand furnace, or one of ashes, and let them have a moderate heat for some hours, 'till half the water be evaporated; after that, you must put out the fire, and let them cool; then decant off the water gently into glaz'd earthen pans.

Then pour fresh water on the *polverine* that remains in the bodies, and let it digest as before, on a sand-furnace, in a moderate heat; and repeat this 'till the water has extracted all the salt, which will appear to the eye, when the water is void of all colour; and to the taste, when it is no longer saltish.

Then take these lees, and filtre them into other glaz'd pots, and let them stand five or six days, that whatever is earthy in them may settle to the bottom; then filtre these lees again, then they will be purified, and separated from most part of their earthy matter.

After the lees are thus purified, put them again into glass bodies, luted at the bottom, as before; and set them in a furnace of sand, or ashes, there to evaporate all the water over a

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gentle heat; taking notice, that when the matter begins to dry, you must still make the fire more gentle, for fear the salt should be burnt.

This salt being dry, you must take it out of the cucurbits or bodies, and examine whether they are crack'd or not, which often happens by reason of the strength of the salt: in that case you must put the salt into other cucurbits, luted at the bottom as the former, and fill them again with common water, and place them again, as before, in a furnace of sand or ashes, with a gentle fire to dissolve the salt, and that 'till an eighth part of the water be evaporated; then put out the fire, and let it cool; then empty this water, impregnated with the salt, into glaz'd earthen pans; and let it stand 24 hours, afterwards filtre it diligently, that it may be the better purified, and separated from its *faeces*, and the rest of the dregs or terrestrial particles.

Then you must again put these filtred lees into the same cucurbits, if they are not crack'd, and if they are, into others; then put them on the furnace to evaporate the water over a gentle fire, which you must still make more gentle, when it is almost evaporated, and the salt begins to dry, lest it should burn.

Then after it is dry, pour upon it fresh water to dissolve it, then filtre it again as above, and reiterate these processes 'till the salt be perfectly purified, and there remain no *faeces* or earthy matter.

With this salt and some very white *tartar*, searced to an impalpable powder, may be made so fine and transparent a crystal, that it will surpass the natural, as has been said.

POMEGRANATE BLOSSOM; to colour this, lay on *mine de plomb*, *vermilion*, and *carmine*, and finish with *carmine*.

Let the green be *verditer* and *masticote*, and shade with *iris*.

GIACOMO PONTE DA BASSANO IL VECCHIO, was scholar to his father *Bonifacio*, studied *Titian* and *Parmegiano*; born in the year 1510, liv'd at *Bassano* and *Venice*, excell'd in history, animals, landscape and portraits, died in 1592, aged 82 years.

PORTRAIT } Is the representation of a person, and  
 PORTRAITURE } especially a face, done from the life.

And in this sense we use the term *portrait-painting* in contradistinction to *history-painting*, where all resemblance of person is disregarded.

*Portraits* are usually painted in oil-colours, sometimes in water-colours, sometimes in miniature with crayons, pens, pastils, &c.

POSTURE [in *Painting* and *Sculpture*, &c.] is the situation of a figure with regard to the eye; and of the several principal

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pal members thereof, with regard to one another, whereby its action is exprefs'd.

A confiderable part of the art of a painter confifts in adjusting the *postures*, in giving the moft agreeable *posture* to his figures; and in accommodating them to the characters of the refpective figures, and the part each has in the action; and in conducting and purfuing them throughout.

*Postures* are either *natural* or *artificial*.

*Natural postures* are fuch as nature feems to have had a view to, in the mechanifm of the body; or rather fuch as the ordinary actions and occasions of life lead us to exhibit, while young, and the joints, mufcles, ligaments, &c. are pliable.

*Artificial postures* are thofe, which fome extraordinary views or occasions lead us to exhibit: fuch *e.gr.* are thofe of our *pofture-mafters*.

POTTERY is the art of making earthen pots and veffels, or the manufactory of earthen ware.

The *wheel* and lathe are the chief, and almoft the only inftruments us'd in *pottery*: the firft for large works, and the fecond for fmall; altho' in truth they are much the fame as to the manner of uſing them.

The potters wheel confifts principally in the nut, which is a beam or axis, whoſe foot or pivot plays perpendicularly on a free-ftone ſole or bottom.

From the four corners on the top of this beam, which does not exceed two foot in height, ariſe four iron bars, call'd the ſpokes of the wheel; which forming diagonal lines with the beam, deſcend and are faſtened at the bottom to the edges of a ſtrong wooden circle, four foot in diameter, perfectly like the fellows of a coach-wheel, except that it has neither axis nor radii; and is only join'd to the beam, which ſerves it as an axis by the iron bars.

The top of the nut is flat, of a circular figure, and a foot in diameter. On this is laid a piece of glaz'd earth to be turn'd and faſhioned.

The wheel thus dispos'd, is encompass'd with four ſides of four different pieces of wood, ſuſtain'd on a wooden frame; the hind piece, which is that whereon the workman fits, is made a little inclining towards the wheel; on the fore-piece are plac'd the pieces of prepar'd earth. Laſtly, the ſide-pieces ſerve the workman to reſt his feet againſt, and are made inclining, to give him more or leſs room, according to the ſize of the veſſel to be turn'd.

By the ſide of the workman is plac'd a trough of water, wherewith from time to time he wets his hands, to prevent the earth's ſticking to them.

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In *using the wheel*; the earth being prepar'd, and a piece of it suitable to the work intended, laid on the top of the beam; the workman sits down, his thighs and legs being much expanded, and resting his feet on the side-pieces, as is most convenient.

In this situation the wheel is turn'd round, 'till it has got the proper velocity; when wetting his hands in the water, he bores the cavity of the vessel, continuing to widen it from the middle; and thus turns it into form, the wheel turning afresh, and he wetting his hands from time to time.

When the vessel is too thick, he uses a flat piece of iron, with a hole in the middle, and somewhat sharp on the edge, to pare off what is redundant.

Lastly, when the vessel is finished, it is taken off from the circular head, by a wire pass'd underneath the vessel.

The *potters lathe* is also a kind of wheel, but more simple and slight than the former; its three chief members are an iron beam or axis three foot and a half high, and two inches in diameter; a little wooden wheel all of one piece an inch thick, and seven or eight in diameter, placed horizontally at the top of the beam, and serving to form the vessel on; and another larger wooden wheel all of a piece, three inches thick, and two or three foot broad, fastened to the same beam at the bottom, parallel to the horizon.

The beam or axis turns by a pivot at the bottom in an iron stand.

The workman gives the motion to the lathe with his feet, by pushing the great wheel alternately with each foot, still giving it a greater or lesser degree of motion, as his work requires.

They work with the *lathe* with the same instruments, and after the same manner as the wheel.

But neither the one nor the other serve for any more than the forming the body of the vessel, &c.

The feet, handles, and ornaments, if there be any besides the mouldings, being to be made, and set on by hand; if there be any sculpture in the work, it is usually done in earthen or wooden moulds, prepar'd by a sculptor, unless the potter is artist enough to do it himself, which is very rare.

As to the glazing or varnishing of the work, this is usually done with mineral lead, *i. e.* lead pulveriz'd by throwing charcoal-dust into the melted lead, and the ashes of lead, which in effect are only its scum and scoria.

POVERTY is represented in *Painting*, &c. by a woman in a sorry habit, has her right hand fastened to a heavy stone, and expanded wings on her left, as if she was ready to fly up.

The wings signify the desire to ascend to the highest pitch of know-

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knowledge, but the stone hinders the soaring, and they are obliged to stay in their abject state, and become a laughing-stock to the world.

NICHOLAS POUSSIN, of noble descent, born in 1594, studied at *Paris* and *Rome*, practised after *Dominichino*, and the antique after *Flammingo*, lived at *Rome*, excelled in history and small figures, died in 1665, aged 71 years.

**F** FRANCIS DU POYLLI, an engraver, who wrought for several masters, used this mark.

PRACTICE is represented in *Painting*, &c. by an old woman, her head inclined, a pair of compasses in one hand, and a rule in the other, she is dressed in a servile manner.

Her down looks denote her regarding only that part we tread on, and abject things, as appears by her robe; theory does not doat on custom, but relies on the true knowledge of things; the compasses denote reason necessary for the due conduct of affairs; the rule, the measure of things, established by common consent.

PRAISE is represented in *Painting*, &c. by a fair lady all in white, wearing a jewel of jasper at her breast, crown'd with a garland of roses, holds a trumpet in her right hand, out of which issues great splendor, her left arm extended, and seems to point at some particular person.

Handsome, because our ears are delighted with nothing more than *praise*; the jasper and roses denote *praise*, for those who wear them get all mens favour and applause; the trumpet, reputation of those who deserve *praise*; she points at somebody praise-worthy.

PRAYER is represented in *Painting*, &c. by an old woman in a white mantle, looking up to heaven, kneeling; in one hand a fuming censor, a heart in the other, a cock on the ground.

Kneeling denotes her being conscious of her failings; her mantle, that prayer ought to be in secret; the heart shews that it is pray not, lip-labour is in vain; the incense-pot, is a symbol of prayer; the cock denotes vigilance.

PRECEDENCE is represented in *Painting*, &c. by a majestic woman, having a wren on the crown of her head, and opposes an eagle with her right hand, to prevent its soaring aloft to dispatch its rival.

The wren amongst the *Romans* was called king of birds, and *Aristotle* says, the eagle often contends with it, as not enduring she should have the preeminence, which causes the antipathy between them.

FRANCISCO PRIMATICCIO *Bolognese*, born in the year 1490, scholar of *Gio Romano*, lived in *Bologna*, *Mantua*, and in

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*France*, excelled in history-painting and architecture, died in the year 1570, aged 80 years.

**\$M & AG** These two marks are in 12 pieces, copied from the paintings of the chapel of *Fontainebleau*; on one side is the first mark, signifying *S. Martin of Bologna*, who was *Francisco Primaticcio*, called abbot of *St. Martin's*; on the other side is the second mark, which stands for *Anthony Guernier*, the engraver.

He also used other marks, as you will find elsewhere.

**PRINTING** is represented in *Painting*, &c. by a woman in a white chequered habit, with the letters of the alphabet on it, holds a trumpet in one hand, round which is a scroll inscribed **UBIQUE**, and in the other the sempervive, or house-leak, with the word *semper*; a printing-press by her, with some implements.

White shews the impression should be pure and correct; chequered, to signify the little boxes for the letters; *ubique* signifies its being famous every where.

**A RED-INK** for making an **IMPRESSION** of a **PRINT**.

Mix some *vermilion* finely ground, with *linseed-oil*, but so liquid that it will run or flow in a pen, and with this trace the lines of a print; and as soon as you have done all, with a sponge and water wet the back side of the print, and turn the printed side downwards upon a piece of white paper, so that it may lie smooth; then lay over that a piece of dry paper, and press it hard on every part, and the lower white paper will receive the impression: but if you have a press, such as is used for pressing linnen, it will be better to put the paper between two of the wooden leaves, and then to screw the press as tight as may be, for then you will have a fine impression.

**PRODIGALITY** is represented in *Painting*, &c. by a woman hoodwinked, of a smiling countenance, holding a cornucopia with both her hands, out of which she scatters gold and other precious things.

Blind, to shew they are so who spend and squander away their substance, without reason, to those who are unworthy of it, for the most part observing neither rule nor measure.

*The PROPORTIONS of a HUMAN Body.*

1. The length of an upright body is equal to eight times the length of the face or head: the arm hanging strait down, reacheth within a span of the knee: the length of the hand must be the length of the face: the arms extended must be the just length of the body.

2. Those parts which are near the eye must be made larger and longer than those that are farther off (because the eye judgeth so of them) and according to the distance from the eye,  
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so must you vary from that which is otherwise the real true proportion of those.

It is scarce possible to do any thing in the art of *Proportion* commendably, without the knowledge of *Arithmetick* and *Geometry*; wherefore the knowledge of these sciences is required, as what is absolutely necessary: for how otherwise should any one understand the exact measure and proportion of a body?

### 3. *To make a side-way head.*

First, form an equilateral triangle, in what position you please, turning the triangle, you make the face upon one of the three sides, be it which it will, either upwards or downwards, higher or lower, dividing that side into three equal parts, the *one* to serve from the lower part of the *hair* to the lower part of the forehead; the *second*, from thence to the upper part of the nostrils; the *third*, from thence to the lower part of the chin.

4. These three lines being formed, or drawn, draw with your black-lead pencil, coal, or chalk, a faint crooked stroke, which may reach from the top of the forehead to the eyebrow, from whence draw the slope line, bending at the end.

To make the nose (either long or short, gross or thin, as you desire it) let it end at the second distance, where the nostrils are to end.

5. Then subdivide the remaining third part in the midst, where the mouth shall be placed for the parting of the upper and under lips; then frame the chin, having respect to the perpendicular line, that it fall not out of the middle of the chin, adjoining thereto, the under chin down to the throat or gullet.

6. With the other two dividing lines (the one from the top of the forehead downwards, ending in the midst of the back part of the ear; and the other proceeding upwards from the chin, ascending, till it meets with the superior descending line) guide yourself in describing the ear, taking heed that its circumference stretch not out too far about the upper part of the forehead.

7. Describe a great circular line, by which from the roundness of the head to the nape of the neck, observing the natural proportion, and from thence downwards the rest of the neck. Observe also, that the tip of the ear exceeds not the lower part of the nostril.

### *To describe the fore-right face.*

Form a perfect oval, which divide in the midst by a line the longest way, (*viz.* a perpendicular line) which divide into three equal parts, allowing the fourth of one of the three parts for the hair on the forehead; so you have the first third part for the forehead and hair, the second third part for the nose, and the third third part for the chin.



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2. The mouth is to be formed in the midst of this ; always remembering that the eyes must be in one line ; the cross lines of the nose and mouth must always be correspondent to the cross line where the eyes are placed ; the eyes must be the length of one eye distant from another, and let their inward corners be exactly perpendicular over the outside of the nostrils.

To make the ears, they must be much foreshortened, by foreshortening, *viz.* for that the eye doth not see their extended latitude ; it must be abbreviated or drawn in, and the length of the ear must be from the eye-brows to the bottom of the nostril ; then describe the neck with the hair, according to their natural situation.

### *To draw a HEAD foreshortened.*

1. Make a circular draught (much like that in a fore-right face) with the aspect upwards or downwards, as in the fore-right head, where the transverse lines are strait, but these are drawn circularly,

2. If the head flies upwards, the traced strokes and the divisions must ascend or rise upwards ; but if it looks downwards, then they must all descend downwards, with this caution, that the ears and eyes fall not out of their due points, as you may see in the example.

3. In *foreshortening*, you must take things as they appear to the eye, and not to draw the full proportion of each part ; but to shorten all according to the *ratio* or proportion, which they are obfuscated.

If you make a side face without any prescribed measure or triangle ; you ought however to consider in your mind the natural distances and proportion, and by drawing many without a rule or limit, you will easily do it by the eye ; and your hand will draw all things right by custom.

And those first strokes or draughts being taken from the life, and reduc'd by the pencil with colours, you will find it very correspondent and alike, and as exact as you can desire it.

PER.SPECTIVE PROPORTION is to be judg'd according to the distance of the eye from the thing view'd, as if one part of the body comes nearer to the eye than another, it is to be represented *in drawing*, &c. so much bigger than the other part of the body, which trends away from the eye : as if one leg stands behind another, the foremost coming first to the eye, must be made somewhat bigger and longer than the other, because the eye judgeth so of it.

And in like manner you are to observe the same rule in any other part of the body, that the proportion must be lessened according to the distance that it is from the eye ; which notwithstanding cannot be much in a principal figure.

But

## P U R

But this rule is more nicely to be observ'd in stately palaces, cathedral churches, or such like edifices, where there is a great variety by reason of their greater distances.

As also many times many figures stand far remote from the eye, and some nearer, which you are to take special notice of, that you express those that are far off at a distance, not too big nor plain. See the several articles in PERSPECTIVE.

PROSPERITY is represented [in *Painting*, &c.] by a woman richly clad, in one hand a cornucopia heaped up with money, in the other an oak-branch with acorns and violets upon her head.

The horn of plenty filled denotes money necessary to lead a prosperous life, the oak long life absolutely necessary to it, as do the purple violets that always produce flowers.

MARCELLO PROVENZALE *da* CENTO, the scholar of *Paulo Rosseti*, liv'd at *Rome*, excell'd in history, and in *Mosaic* works superior to any, died in the year 1639, aged 64 years.

PRUDENCE is represented [in *Painting*, &c.] by a woman with two faces, a gilded helmet on her head, a stag by her, a looking-glass in her left hand, in her right an arrow, and a remora fish twisted about it.

The helmet signifies the wisdom of a prudent man, to be armed with wise council to defend himself, the stag shewing that we should ruminate before resolving on a thing, the mirror bids us examine our defects by knowing ourselves; the remora that stops a ship, not to delay doing good when the time serves.

P. S. F. stands for *Peter Stefanoni fecit*; this artist engrav'd *Caracci's* works.

PURPLE is a red colour bordering on violet, made principally with cochineal or scarlet grain.

*Purple* was in high esteem among the ancients, especially the *Tyrian purple*, which pass'd through more dyes than the rest; and which colour was in a manner almost peculiar to kings and emperors.

Yet this *purple* did not exceed that now in use; the chief reasons why the former has been disus'd, are, that our modern *purple* is not only cheaper, but finer.

The ancient or *Tyrian purple* was tinged or dyed with the blood of a testaceous shell-fish, which the *Latins* call *purpura*.

There is now found about *Nicoya* in the *Spanish West-Indies* a shell-fish, which perfectly resembles the ancient *purpura*, and is in all probability the very same.

*Gage* relates of this fish, that it usually lives seven years; that it hides itself upon the approach of the dog-days, and continues hid for 300 days running. These

## P U R

These fishes are gather'd plentifully in the spring, and by rubbing one against another, yield a kind of saliva or thick glair, resembling soft wax; but the *purple* dye is said to be in the throat of the fish, and the finest part in a little white vein; the rest of the body is of no use. He adds, that the chief riches of *Nicoya* consists in this fish.

Cloth of *Segovia*, dyed with this *purple* liquor, is sold for 20 crowns the ell, and is worn by none but the greatest *Spanish* Lords.

Besides the *West-Indian* purple fishes, we have others much nearer home; and Mr. *W. Cole* did in the year 1686, discover purple fishes on the coasts of *Somersetshire*, *South-Wales*, &c. where they were found in great abundance, as we find in the *Philosophical Transactions*.

Mr. *Reaumer* observes, that this fish is a kind of *buccinium*, by which name the ancients call'd all those shell fishes, that bear any resemblance to a hunting-horn; and, as *Pliny* relates, the ancient *purple* was taken from this kind of shell-fish.

The author describes the method of obtaining the colour as follows; they break the shell, which is very hard, holding the mouth of the fish downwards, so as not to crush the body; and pick off the broken pieces, and then there appears a white vein, lying transversely in a little furrow or cleft, next the head of the fish.

In this vein is the *purple* liquor lodg'd; some of which being laid on linnen, appears at first of a light green colour; but if expos'd to the sun, soon changes into a deep green, and in a few minutes more into a sea-green, and in a few more into a blue; thence it soon becomes of a *purplish* red, and in an hour more of a deep *purple* red.

And here the action of the sun ends; but it becomes of a most bright, beautiful crimson, by being wash'd in scalding water and soap, which will bear washing admirably without any styptick.

Mr. *Reaumer* has discovered another very different kind of *purple*. This, he says, is produc'd in oval grains about a quarter of an inch long, and one inch thick, full of a white liquor, bordering on yellow, which cover certain stones or sands, about which the fish call'd *buccina* of *Poictou* in *France* usually assemble.

These he supposes to be the eggs of some unknown fish.

These grains being bruis'd on a white linnen cloth, at the first only tinge it yellow, and that insensibly, but in three or four minutes turn to a very beautiful purple red; provided the linnen be expos'd to the open air; for the air of a room, altho' the windows be open, will not produce this effect.

This colour will fade a little by repeated washings.

There

## P U R

There is likewise a *purple* fish about the *Caribbee* Islands; this fish is call'd *Burgan*, being much about the size of the end of a finger, and in shape like our periwinkles: the shell of it is of a brownish azure, the flesh white, the inwards of a very bright red, the colour of which appears through the body; and it is this that dyes the froth, which it casts forth when taken, and which at first is of a violet hue, bordering on blue.

To cause these fish to yield the greater quantity of froth, they lay them on a plate, shake and beat them one against another; upon which the plate is immediately cover'd with the froth, which they receive on a linnen cloth, and as it dries becomes *purple*.

*P. Labat* observes, that this colour is found to dwindle and dissipate in proportion as the linnen that is dyed with it is wash'd.

The same author gives us also the description of another *purple* dye, produc'd by a plant that grows in the *Antilles* islands: the juice of this tree, when cut, he says, is of a blood-red colour, and communicates the same colour to cloths; tho' like the former it loses much in washing.

### *A transparent PURPLE.*

This may be made either *redder* or nearer the *blue*, as you would have it, by boiling four ounces of rasp'd *Brasil* wood in a pint of pale stale beer, and half an ounce of *logwood* or *Campachy wood*, 'till the liquor is heightened to the colour you desire, which may be known by dipping a piece of paper in it.

If you find it too red, add a quarter of an ounce of *logwood* to the *Brasil* wood, and it will be much nearer to the purple than the former; and by this method you may humour it to any degree of *purple*, by putting in either more or less *logwood* to the former composition, and fixing the colour with *alum*.

This will produce such clear *purple*, as no mixture of *solid reds* and *blues* will produce, and the receipt has been for a long time kept secret.

Madam *Mariana* of *Amsterdam*, famous for painting in *miniature*, and her excellent manner of illuminating prints, says that the best *purple* that can be made, may be compos'd between the *carmine* and *indigo*; to strengthen which on the red side, you may add *lake*, between the lighter and darker part: and so *lake*, when it is us'd in the same way, on the foregoing *purple*, or the *liquid crimson*, produces a very fine effect.

The colour of the *purple* may be varied, and made either redder by putting more *carmine*, or bluer by using more *indigo*; which being mix'd on a white *Dutch* tile, will shew itself.

### *To dye stuffs, &c. a PURPLE.*

Allow a sufficient quantity of fair water to every pound of stuff, one pound of *tartar*, and two ounces of *alum*; in which  
boil

## P U R

boil the cloth for an hour; then take it out, cool and rinse it; after this warm some clean water, into which put in three ounces of *Brasil* wood; boil it half an hour, and then work the stuffs in it, 'till it becomes as red as desired: upon which, take them out, and put into the dye two ounces of *pot-ashes*; stir it well about, and put in the red stuff once more; roll it off and on the roller, that it do not spot; then cool, and rinse it out.

### *Another Purple.*

First blue the ware in the suds, which has been wrought 'till it turn to a sort of a half green, and then boil'd for three quarters of an hour with twelve ounces of *aqua fortis*, half a pound of *sal-armoniac*, two pound of *white-wine tartar*, two pound of *roach alum*, and afterwards rinsed out.

*To finish it*; proportion your suds to thirteen pound of goods, and take ten ounces of *cochineal*; and if you think that quantity will make it too red, you may correct it with an ounce of *pot-ashes*, and an ounce and half of *lac*.

If the *aqua fortis* be tempered, or the work perform'd in a tin kettle, or less *sal armoniac* us'd, the colour will incline more to a blue.

### *To dye stuffs of a lasting purple dye.*

The stuff, when white, ought to be very clean and free from all spots and stains, that the stuff may have the better lustre when dyed.

*The blue.* The stuff must first be dyed to the depth of a sky-colour with *woad* or *indigo*, and then dried.

*The browning or deepening.* Boil half a pound of *Brasil*, and divide it into four parts, as is done in the *violet brown dye*, and is to be dyed time after time in the same manner: to the first part of the *Brasil*, add one drachm of *salt-petre*, and one drachm of *sal-armoniac* powder; to the second, add a quarter of an ounce of powdered *galls*, and half an ounce of *Paris red*, which is a sort of bastard *sandarach*; to the third a quarter of an ounce of *galls*, and a quarter of an ounce of calcin'd *tartar*, and of *alum* and *salt-petre*, each a drachm.

The fourth time, a quarter of an ounce of *galls* powdered, as much *turmerick*, and a quart of sharp lye, and you will have a beautiful colour.

### *To dye SILK a slight sort of purple.*

Clap the *silk* into the slighter red dye; but increase the quantity of *pot-ashes*, to turn it to *purple*, then rinse and dry it.

### *To dye thread of a PURPLE colour.*

First *alum* the thread with three pound of *alum*, half a pound of *tartar*, and two ounces of *Brasil*, dry it, and draw it through the *woad* or *indigo* dye, then rinse it clean, and dry it again; then to brown or deepen it, take twelve ounces of *Brasil*, be-  
ing

## Q U I

ing first boiled, which liquor divide into three parts, to be us'd at three times.

To the first add half an ounce of *Paris red* (a sort of *sandarach*) one drachm of *mastich*, and a quarter of an ounce of calcin'd *tartar*; always drying the thread, after you have us'd every one of the parts of the liquor. The second time add half an ounce of *turmerick*, two drachms of *cinnabar*, and half an ounce of *gum Arabick*. The third time, when the thread becomes reddish, add a quart of sharp lye, and by this means the thread will be dyed of a lasting colour.

Q.

**Q**UARTATION is a method of purifying gold, by melting three parts of silver with one of gold; and then casting the mixture into *aqua fortis*, which dissolving the silver, leaves the gold at the bottom in the form of a black powder; this operation more commonly is call'd *parting* and *depart*.

*R* or *Q* PETER QUAST us'd these two marks, making a P and Q and at other times his mark was P *Quast*, as in certain grotesque pieces.

*To harden* QUICKSILVER.

Cast lead separated from its dross into a vessel, and when it begins to cool, thrust in the point of a stick, then take it out and cast in the *quicksilver*, and it will congeal: then pound it in a mortar, repeating this several times; and when it is hard, melt it often, and put it into fair water, doing it so long, 'till it is hard enough; then being all in a piece, boil it in linseed oil, for the space of six hours, and it will become malleable, and will be hammered.

*To fix* Quicksilver, *being hardened*.

This may be done by laying it in a crucible with powder of glass, layer upon layer, covered and luted, and by heating it all over red-hot, and then melting it.

*To make* Quicksilver *malleable*.

First harden the *quicksilver*, according as before directed, then break the metal into small pieces, and boil it for a quarter of an hour in sharp vinegar; then add a little *sal-armoniack*, and digest all together for ten or twelve days; then boil all together in a well-luted crucible, 'till it is red-hot, and by degrees crack'd.

Lastly, hang the *quicksilver* in a pot with brimstone at the bottom, cover it, lute it, and set it into the fire, that it may grow hot by degrees, and receive the fume of the sulphur; do this for a month, once a day, and the *quicksilver* will run and bear hammering.

To

## Q U I

*To tinge Quicksilver of the colour of gold.*

Having hardened it, break it into small pieces, and put it into a crucible with the powder of *Cadmia*, layer upon layer, mixed with the peels of pomegranates, turmerick powdered finely, and raisins; cover the crucible, and lute it well, and set it on a fire for six or seven hours, that it may be red-hot; then blow it with bellows 'till it run, then cool it while it is covered with coals, and it will be of the colour of gold.

*Another way of tinging QUICKSILVER.*

Take of purified *mercury* two ounces, *sulphur* four ounces, *aqua fortis* six ounces, let them all stand 'till the water grow clear; then distil it with its sediment, and at the bottom of the limbeck, you will find the *mercury* hard, and of the colour of gold.

*To order QUILLS.*

If a goose quill be too thick or hard, scrape it to a proper thickness with the back of your pen-knife; then wet it with spittle, and roll it in the scrapings, and they will stick to it; then rub it bright with a piece of woollen cloth, or lappet of your coat.

If the quill be soft, put the head of it into soft ashes, keeping it stirring 'till it is soft, (you may also press it almost flat on your knee while hot, with a back of a pen-knife, and afterwards with your finger reduce it to a roundness) and it will harden it; and when it is cold, you may make your pen.

If you have a number of quills to harden, which makes them slit the better; set water and alum over the fire, and while it is boiling, put a handful of quills, the barrels only, in for a minute, and lay them by.

Or they may be put into a pot of hot sand, and taken out and flattened, &c. (as before) then the skin rubb'd off with a piece of fish-skin, which will not only harden, but render them clear and polish'd.

*To colour the barrels of QUILLS red.*

Take a pint of *vinegar*, put into it half an ounce of *alum* powdered, *vermilion*, and the fine scrapings of *Brasil* wood, of each one ounce; boil them 'till the liquor begins to thicken; then strain it, and put the liquor into a narrow deep skillet, and when it boils, hold the barrels of the quills in the liquor, until they change their colour, and this will harden them also.

To tinge them *yellow*, you may use a pennyworth of *saffron*, and an ounce of *turmerick* also in powder.

R.

**R.** Is the mark of *Ravignano*, and underneath R. V. I. i. e. *Raphael Urbino* inv.

RAGE



## R A V

RAGE [in *Drawing*, &c.] may be represented with the same motions as *Despair*, but yet more violent; for the face will be almost quite black, covered with a cold sweat, the hair standing up an end; the eyes wandering, and in a contrary motion; the eye-balls sometimes rolling towards the nose, and sometimes backwards towards the ears; all the parts of the face will be extremely marked and swell'd.



**MARK ANTONIO RAIMUNDI** of Bologna, call'd of *France Raphael Urbin* engraver, his marks; which pieces he mark'd with the letters R S. M. F. intimating by the two first letters *Raphael Sancio*, by the two last *Marco Francia fecit*.

He likewise us'd other marks, *i. e.* B. S. signifying *Bononiensis sculptor*.

In his plates copied from *Buonaroti*, he put MI. AG. FLO. *i. e.* *Michael Angelus Florentinus*; and afterwards for his own mark he us'd that of *Mantegna*, which may also signify *Marcus Antoninus fecit*.

In the life of *Christ* engraven by him, and copied from the plates of *Albert Durer* of *Venice*, he mark'd the leaves with *Albert Durer's* mark.

**The RANUNCULUS.** Of this flower there are many sorts, the finest of which are *reddish* and *orange* colour'd: for the first of these use *vermilion*, with a very small quantity of *gambooge*; add *carmine* to shade with, and finish with this last colour, and a little *gall-stone*.

For others use *Indian lake* instead of *carmine*; but especially at the heart.

The *orange* colour may be imitated with *gambooge*, finish'd with *gall-stone*, *vermilion*, and a little *carmine*, leaving some yellow stripes or spots.

The green of the stalks may be done with *verditer* and *masticote*; to which must be added *iris* green for shading: the leaves must be of a deeper *green*.

**RAPTURE** } If admiration is caus'd by an object above  
**RAVISHMENT** } the comprehension of the soul, as the power or greatness of God, then the motions of rapture will be different from that of veneration.

For the head will be bowed towards the heart, the eye-brows rais'd, and the eye-balls lifted up.

The head so bowed seems to mark the humility of the soul.

For this reason also, neither the eyes nor eye-brows are drawn towards the glands, but lifted up towards heaven, where they seem fix'd to discover what the soul cannot understand.

The mouth is open, having the corners a little rais'd, which intimates a kind of extacy. See the Plate.

## R E D

If on the other hand, the object that causes our *admiration* have nothing in it deserving our esteem, this want of esteem will produce scorn.

This passion or affection may be also further express'd by the body thrown backwards, the arms lifted up, the hands open, and the whole action shall shew a transport of joy. *See the plate.*

**S**ILVESTRA DA RAVENNA, scholar and imitator of *Marc Antonio* from 1535 to 1560. He employ'd himself wholly in engraving the pieces of *Raphael* and *Julio Romano*.

R. B. T. A. stands for *Robetta*.

REALGAL } A mineral, a kind of red arsenick, differing  
RISALGAL } from the common arsenick, which is white, and from orpiment, which is yellow.

REASON is describ'd [in *Painting*, &c.] armed like *Pallas*, upon her helmet a crown of gold, a drawn sword in her right hand, a lion bridled in her left, before her stomach a breast-plate with the numeral cyphers.

The crown teaches that reason alone can bring valiant men upon the stage, and into credit; the sword intimates the extirpating vice that wars against the soul; the bridle, the command over wild passions; the cyphers, that as by them real things are proved, so by reason we acquire those that relate to the common welfare.

RED is one of the simple or primary colours of natural bodies, or rather of the rays of light.

The *red* rays are those of all others the least refrangible.

Hence, as *Sir Isaac Newton* supposes the different degrees of refrangibility to arise from the different magnitudes of the luminous particles, of which the rays consist; the *red* rays, or *red* light, is concluded to be that which consists of the larger particles.

*Red* is distinguished into three kinds; one bordering on the *blue*, as *columbine* or dove-colour, purple or crimson; another bordering one *yellow* or flame-colour, and orange.

Between these extremes is a medium, partaking neither of the one nor the other, which is what we properly call *red*.

*Acids* turn *black*, *blue*, and *violet* into *red*; and *red* into *yellow*; and *yellow* into a very pale *yellow*.

*Alkali's* change *red* into *violet* or *purple*, and *yellow* into *seuilemort* or *dead-leaf* colour.

Terrestrial and sulphureous matters become *red* by extreme heat; and some at length black, as may be seen in *brick*, *red-bole*, *red-chalk*, *slate*, *pumice*, which, when vitrified by a burning glass, become black; lobsters become red by boiling by a moderate fire, and by a violent fire, black.

*Mer-*

## R E D

*Mercury* and *sulphur* mix'd and heated over a moderate fire, make a beautiful *red*, call'd artificial *cinnabar*.

An *acid spirit*, as *lemon* juice, being pour'd on a blue solution of *turnsole*, turns it into a beautiful *red*: *alkali* restores it to its original blue.

Filtrating the reddest wine takes from it all its *red* colour.

M. *de la Hire* observes, that a very luminous body, view'd through a black one, always appears *red*; as when the sun is seen shining through a black cloud.

He adds, that many persons, who see all the other colours perfectly well, yet have no idea of *red*, and only see it as *black*.

Some reckon seven kinds or casts of *red*; viz. *scarlet red*, *crimson red*, *madder red*, *half-grain red*, *lively orange red*, and *scarlet of cochineal*; but they may all be reduc'd to these three, according to the three principal drugs which produce the colours, which are *vermilion*, *cochineal*, and *madder*.

The fine *scarlet*, call'd *scarlet of the Gobelins*, is made of *agaric* water prepar'd with *bran*, and turn'd a little sourish, *woad*, and *scarlet-green* or *vermilion*; some *dyers* add *cochineal*, and others *fœnugreek*, brightening it with sour water, *agaric*, *tartar*, and *turmeric*.

*Crimson red* is made with sour water, *tartar*, *cochineal*, *mestique*.

*Madder red* is made with *madder*, to which some add *realgal* and *arsenic*; others common salt, or other salts, with *wheat* flower; or *agaric* with spirit of wine with *galls* or *turmeric*.

The *half grain* is made with *agaric* or sour water, half *scarlet* grain, half *madder*, and sometimes *turmeric*.

As to the *lively orange red*, the stuff must be first laid in yellow, then in a liquor made of *goats-hair*, (which has been boiled several times with *madder*;) and now dissolv'd over the fire with certain *acids*, as *urine*, *tartar*, &c.

The half *crimson* is made of half *madder*, half *cochineal*.

The *scarlet of cochineal*, or *Dutch scarlet*, is made with *starch*, *tartar*, and *cochineal*; after it has been first boil'd with *alum*, *tartar*, *sal gemma*, and *aqua-fortis*, in which *tin* has been dissolved.

Besides these seven *reds*, which are good and allow'd colours, there is also a *Brasil red*, which is discouraged, as fading easily.

Of the seven good *reds*, only four have particular casts or shades; the *madder red*, the *crimson red*, the *lively orange red*, and the *scarlet of cochineal*.

The casts or shades of *crimson* are flesh-colour, peach-colour, carnation-rose-colour, an apple-tree flower-colour.

Those of *madder* are flesh-colour, onion-peel-colour, and flame-colour.

## R E D

Those of the *orange* are the same with those of the *crimson*.

*Scarlet*, besides the shades of all the rest, has some peculiar to itself, as cherry-colour, fire-colour, &c.

RED; in painting in oil-colours, they use a red call'd a *cinnabar*, or *vermilion*; and another call'd *lacca*.

In *limning* and *fresco*, for a *violet-red*, instead of *lacca*, they use a natural earth found in *England*; for a *brown-red* they use *oker*.

### Observations on RED colours.

*Red-lead* is the nearest to an orange-colour, and mix'd with yellow berries, it makes a perfect orange. It is us'd for buildings and highways in landships, being mix'd with a little white.

It is the only bright colour to shadow yellow garments with, to make them appear like changeable taffety; and to colour any light ground in a picture, and several other uses.

*Cinnabar lake*; this is good for shadowing yellow garments with in the darkest places; as also *vermilion* mix'd with *white*, only it makes a sky-colour, with *white* and *red-lead* a flesh-colour; and is an excellent colour of itself to colour garments with.

This colour being dear, you may therefore, for ordinary uses, instead of it use red-ink, thickened upon the fire; which will serve very well, and better than *lake*, unless it be very good.

*Red ink* is made by boiling *Brasil* rasp'd in *vinegar*, mix'd with beer, adding a little *alum* to heighten the colour; boil it 'till it tastes strong on the tongue, then strain it out, and keep it close stopp'd for use.

But if it be made a flesh-colour, or a sky-colour, then it must not be thickened.

*Vermilion* is a most perfect scarlet-colour; it is so fine, that it needs no grinding, but may be tempered with your finger, with glair or gum-water, and so us'd, mixt with a little yellow-berries, it makes it the lighter and brighter colour, and is then principally us'd for garments.

### A glorious colour of East-India cakes.

In using these cakes, you may take one, or a part of one of them, and put it into a horse-muscle shell, adding a little fair water, just enough to wet it all over, letting it lie so about a quarter of an hour; then squeeze it hard against the shell, or wring it out between your fingers, and there will come forth an admirable transparent colour, which will serve instead of *lake*, if the *red-cake* be good.

These cakes are commonly counterfeit, and good for little; but you will find by cutting a little way into them, if they be good, they are as red within, as they are without; if naught, they look pale and whitish within.

Of

## R E D

### *Of dying RED colours.*

#### 1. *To dye the best Red colour.*

Take clear stale wheat-bran liquor, or four tapwort, a sufficient quantity, *alum* bruised three pounds, put all into your copper, enter your twenty yards of broad cloth, and handle it, boil it three hours, cool and wash it well; take fresh wheat-bran liquor a sufficient quantity, *madder* five pounds, enter your cloth at a good heat, handle it to a boiling heat, cool it and wash it well; take fresh wheat-bran liquor a sufficient quantity, let it boil, and put in urine a gallon, enter your cloth, boil half an hour, cool it and wash it, and it is done.

Note, *Urine is not much used now, and some do not wash the cloth out of the alum.*

#### 2. *Another Red dye.*

Take clear fair water a sufficient quantity, *alum* three pounds; boil and enter twenty yards of broad cloth, boil it two hours and an half; take it out, and range it, and hang it up a little while to let the water drop from it. Take clear stale bran-liquor a sufficient quantity, *madder* four pounds, steeped first an hour in small beer, bring it almost to a scalding heat, and enter your cloth, and handle it swiftly for the space of half an hour; take your cloth into urine, after which wash it well, and it is done

#### 3. *Another very good Red dye.*

Take water a sufficient quantity, *alum* three ounces to every pound of wool, yarn, or cloth; boil the wool, put it not in 'till the *alum* is melted, boil three hours, take it out, wash it well in cold water, and cast away the liquor; take fresh clear bran-liquor, or small-beer unboiled, add to it five ounces of *madder* to every pound of wool, yarn, or cloth, &c. put in the *madder* when the liquor begins to be warm; break the *madder* well with your hands when in the liquor, and when it is near boiling, enter your cloth, &c. and handle it well, boiling it half an hour, or 'till it is well-coloured; then put in three quarts of urine, give two or three boils, and so take out your cloth, &c.

#### 4. *Another Red colour.*

Take liquor a sufficient quantity, *alum* three pound, *tartar* one pound, boil and enter twenty pounds of wool, yarn, or cloth; boil two hours, take it out, wash it clean, cast away the liquor, and put in clear fair water, and *madder* four pounds: when it boils, enter your cloth, &c. again, and handle it 'till it is enough.

#### 5. *Another Red colour or dye.*

Take water thirty quarts, *alum* two ounces and an half, and therein boil thirty pounds of wool, yarn, or cloth, &c. and take it out; take fair water ten gallons, *madder* five shillings worth,

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Let it stand twelve hours, boil and enter your wool, yarn, cloth, &c. boil it quickly, and then take it out, and put it into strong urine for one hour, then take it out and wash it.

### 6. *Another Red colour or dye.*

Take four bran-liquor, *alum* two pounds and an half, *tartar* two ounces; enter twenty yards of broad cloth, and boil them three hours, and take them out; take fresh bran-liquor a sufficient quantity, *madder* four pounds, boil, handle, and finish it.

### 7. *Another Red dye.*

Take stale wheat-bran liquor six days old, or four tapwort a sufficient quantity, *alum* three pounds, enter twenty yards of broad cloth, boil three hours, cool and wash them; take fresh and clear bran liquor a sufficient quantity, *madder* four pounds steeped in the same liquor, enter your cloth at a good heat, and handle it to a boiling, take it out cool, and wash it well.

### 8. *A good Red dye.*

Take rain-water a sufficient quantity, *Brasil* in powder, fine *vermilion*, of each one ounce, *alum* one drachm, boil them 'till half is consumed.

### 9. *Another excellent Red dye.*

Take *lixivium* of unslacked lime five gallons, *Brasil* ground two pound and a half; boil to the half, then put to it *alum* twenty ounces; keep it warm, but not to boil: then what you would dye in this liquor, dip into a lye made of ashes of *tartar*, letting it dry, then dip it into the lye.

### 10. *Another good Red colour or dye.*

What you would dye, first boil in *alum* water, then dip it into the following liquor; take water a sufficient quantity, *Rosset* one pound, *gum Arabick* a little, boil a quarter of an hour, and then strain it for use.

### 11. *To make a pure clear Red dye.*

Take wheat-bran liquor thirty quarts, or a sufficient quantity, *Brasil* in powder four pounds, *alum* in powder two pounds, *tartar* one pound; mix and dissolve, and make a tincture; enter your stuff or cloth, boil it for two hours, take it out, and boil it again in fresh bran-liquor thirty quarts, adding *madder* three pounds, and perfect the colour with a moderate heat without boiling.

### 12. *Another good Red dye.*

Boil the things you would dye first in *alum* water, then take them out, and boil them in water with *Brasil* in fine powder; let it boil 'till the scum arises, then put in the things to be dyed, and let them boil 'till the water looks of an orange tawney; casting in then also a handful of bay salt.

### 13. *To colour barley-straw, &c. Red.*

Boil ground *Brasil* in a *lixivium* of pot-ashes, and in that boil your straw.

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14. *A Red pigment, which shall not grow black.*

Take fine *vermilion*, grind it with water of *gum ammoniacum*, with the addition of a little *saffron*.

15. *To dye a good Red.*

Take stale clear wheat-bran liquor a sufficient quantity, *alum* three pounds, enter twenty yards of broad cloth, handle and boil it three hours, take it out, cool and wash it well; take fresh bran-liquor a sufficient quantity, *madder* six pound, enter your cloth at a boiling heat, and handle it 'till it is as deep as you would have it; and if you please, finish it with *Brasil*.

16. *To make Red paper.*

Take bastard *saffron*, or *safflower*, eight ounces, put it into a linnen bag, and wash it by a river side, 'till it scarcely gives any colour; then put the remainder into a bason, sprinkling it with powder of glass-wort (or rather with *soda*) one ounce; so put it into a little pail of blood-warm water, stirring it, after which strain it, and add a little juice of lemons to make it give a *red* colour, the paper ought to be fine, and dipt into the bason.

*Of dying a Red bluish-colour.*

1. *To dye a Red bluish-colour.*

Take stale clear wheat-bran liquor six days old, a sufficient quantity, *alum* three pounds and an half, *red tartar* half a pound, melt these, and enter twenty yards of broad cloth; handle and let it boil three hours, take it out and wash it well, (but some wash it not.) Take fresh liquor a sufficient quantity, of the best *madder* three pounds, enter your cloth, and handle it to a boiling heat, cool and wash it again: lastly, take fresh bran-water a sufficient quantity, let it boil, enter your cloth, let it boil a quarter of an hour, cool and wash it well again.

2. *A Red bluish-colour in grain.*

Take stale four clear bran-liquor a sufficient quantity, *alum* three pounds and a half, *red tartar* half a pound, enter twenty yards of broad cloth, boil it three hours, cool and wash it, take fresh clear bran-liquor a sufficient quantity, best *madder* three pound, enter and boil again. Take fresh bran-liquor a sufficient quantity, *grains* in fine powder four ounces, *red tartar* three ounces, enter your cloth, boil an hour or more, keeping your cloth well under the liquor, then cool and wash.

3. *Another bluish-colour in grain.*

Take clear stale, or four wheat-bran liquor, a sufficient quantity, *alum* three pounds and a half, *red tartar* eight ounces; melt them, and enter twenty yards of broad cloth, boil it three hours, handle it well, take it out, cool and wash it; take fresh bran-liquor a sufficient quantity, enter your cloth, and handle it, letting it boil a quarter of an hour, cool and wash it; take



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more fresh bran-liquor a sufficient quantity, make it boil, and add thereto grains in powder two ounces, *red tartar* one ounce and half, let them boil, enter your cloth, handle and boil it three quarters of an hour, then cool and wash it well.

### 4. *To make a Spanish carnation colour.*

Take bastard *saffron*, or *safflower*, wash it well, dry it and beat it; and to a pound of it, being beaten, add calcined *tartar* four ounces; grind all together, and put it into a double coarse linnen bag, and affuse upon it a quarter of a pint of lemon juice blood-warm; put into this a sufficient quantity of fair water, and then put in the thing you would dye: but the stuff or cloth you would dye is first to be boiled in *alum* water.

*Of dying Red-rose, or carnation colours.*

### 1. *To dye a Red rose a blood-red, or carnation-colour.*

Take liquor of wheat-bran a sufficient quantity, *alum* three pounds, *tartar* two ounces, boil and enter twenty yards of broad cloth three hours, cool and wash it; take fresh clear bran-liquor a sufficient quantity, *madder* four pounds, boil and sadden according to art.

### 2. *Another Red-rose or carnation colour.*

Take wheat-bran liquor a sufficient quantity, *alum* two pounds, *tartar* two ounces, boil and enter twenty yards of camblet, and boil it three hours, after which take it out, and wash it very well; then add *madder* a pound, enter and boil it again, cool and wash it; after which take clear liquor a sufficient quantity, *cochineal* in fine powder two ounces, *tartar* two ounces, enter your camblet, boil and finish it.

### 3. *To dye crimson in grain.*

First boil the yarn, stuff, &c. in the *red*, (in the following article) then finish it in a strong tincture of *cochineal*, made in part water, part wine, or in wheat-bran liquor; where note, that the vessels, in which the materials are to be boiled, must be lined with tin, otherwise the colour will be defective; the same observe in dying of silks, in each colour, with this caution, that you give them a much milder heat, and a longer time.

### 4. *An excellent observation*

The *Bow-dyers* know that the resolution of *Jupiter* (which is dissolved tin) being put into a kettle with *alum* and *tartar*, makes the cloth, &c. attract the colour into it, so that none of the *cochineal* is left, but all drawn out of the water into the cloth.

### 5. *Another observation.*

The spirit of *nitre*, being us'd with *alum* and *tartar* in the first boiling, makes a firm ground, so that they shall not spot,  
nor

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nor lose their colour by the sun, fire, air, vinegar, wine, urine, or salt-water, &c.

### *To dye* SILK RED.

For every pound of silk allow one pound of *Brasil*, boil it, and strain it, then boil the wood again, adding cold water to it; wave or turn the silk about in it, and take it out of that without wringing, when it hath sufficiently imbib'd the tincture; then add a little pot-ashes, or put them into cold water, and turn the silk up and down in it, and when it is red enough, rinse and dry it.

### *Of dying* SILK RED.

*The way of preparing the liquor or suds, in which the silk must be steep'd, before it be dyed* CRIMSON.

For every pound of silk put four handfuls of wheaten-bran into the quantity of two pails of water; boil them together, and pour the liquor into a tub, and let it stand all night, clarify it, and put into half the water, half a pound of *alum*, and a quarter of a pound of *tartar* of red-wine, reduc'd to an impalpable powder; add also half an ounce of *turmerick*, reduc'd to a fine powder; boil them together for a quarter of an hour, stirring them very well; then take the kettle off the fire, and immediately put in the silk, and cover the kettle very close, that none of the steam may evaporate.

Let it stand thus for three hours, then take out the silk, and rinse it very well in cold water; then beat it very well upon a block, and let it dry.

Then beat a quarter of a pound of galls small, put them into a pail of running river or rain-water; boil them for a full hour, then take the kettle off the fire, and when it is grown just cool enough for you to endure your hand in it, put in the silk, and let it lie and steep in it for an hour, then take it out, and dry it.

### *To dye* SILK a Madder RED.

The preparatory liquor is made as for the crimson.

Put half a pound of *madder* into the quantity of a pail of river-water, let it boil for a full hour, but take an especial care that it does not boil over; then pour it off into a fat, adding half an ounce of *turmeric*, and stir it about with a stick; and when it is cold, put in the silk; and when you take it out, rinse it very well, and beat it on the block; then boil half a pound of good *Brasil* wood, in about a pail-full of preparatory liquor, for full half an hour; then pour it off into a fat, into which put the silk, and afterwards cleanse and scour it as with soap; then rinse it in river-water, &c. according to art.

### *Another Madder.*

Put clear rain-water into a very clean kettle, and having first *alum'd* and prepar'd the silk, as before directed (See the article  
CRIM-

## R E D

**CRIMSON** ;) for every pound of silk take one pound of *madder*, and a quarter of a pound of galls; put these together with the silk into the fuds, but do not suffer them to boil; let it lie half an hour in the aforementioned liquor; then rinse it, beat it, and hang it upon sticks; then rinse it in a tub of cold water, with a few pot-ashes, and if the dye is finished, rinse and dry it.

*To dye woollen cloth, or stuff, MADDER RED.*

Boil three pound of *alum*, two pound and a half of white *tartar*, a quarter of a pound of *fœnugreek*, and two quarts of wheat-bran in the copper, then put in the stuff, and let it boil for two hours and an half; then take it out, and cool it very well, and hang it out for one night; then in order to dye it, put into the copper seven pounds of *madder*, an ounce and a half of *aqua fortis*, a pint of wheat-bran, and stir them about very well, and rinse the stuff in the dye, and then wind it very swiftly upon the roller, and tumble it about the copper for an hour at least, taking care that the fire keep it boiling hot; after which, take it out and rinse it.

*To dye a Genoa MADDER RED.*

Take three pound of *alum*, one pound and a half of *tartar*; boil the stuff in it an hour and a half; then pour off the water, and pour fresh water into the kettle; then make a liquor of ten pound of *madder*, a quarter of a pound of *pot-ashes*, and some urine, and when it hath dissolved one night, boil it off.

*To dye RED.*

First take three pound of *alum*, two pound of *tartar*, half a pint of wheat-bran, in proportion to twenty three yards of cloth, then put more water into the copper, and add six pound of good *madder*, and a glass full of *vinegar*, let the dye be hot, and then put in the cloth, stirring it about 'till it hath sufficiently imbib'd a red colour, then rinse it out, and you will find it of a beautiful *red* colour; but take notice, that the cloth must always be boil'd three hours in *alum* and *tartar*.

*Another MADDER RED.*

For every twelve pound of stuff take a good handful of wheaten bran, one pound and an half of *alum*, three quarters of a pound, half an ounce of *turmeric*, in which boil the stuffs for two hours; pour off the water, fill the copper again, and rinse the stuffs; then add one pound and a half of *madder*, the third part of which must be before dissolv'd, and then put into the fuds; to which you must add a little beaten white *starch* and *vinegar*, then roll the stuff upon a roller in it, 'till it is dyed of a colour sufficiently deep.

*Another.* Hang over the fire an equal quantity of starch-water and rain-water, and for every pound of stuff put in two ounces of *alum*, and let it boil for an hour, and stir it well about; then

## R E F

then take it out, and rinse it very well, then hang the liquor over the fire again, and for every pound of stuff put in three ounces of *Brasil*, and a few pot-ashes; then put in the stuffs, and boil them till they are sufficiently tinged; after which take them out, and dry them as usual.

*To dye Madder RED a light tawney.*

Soak the stuffs one or two nights in the black-dye, roll them and work them well about, to prevent their growing black; and you may take them out, when they are dyed of a tawney, according to the degree of light or dark, as you would have them, and rinse them, &c.

*To dye the English Madder RED.*

Take two pound and a half of *alum*, one pound of pulverized white-wine *tartar*, boil them in water, and when it is proper put in your wet cloth; then put into the suds, for the quantity of twenty-six pound weight of cloth, half a pound of tempered *aqua-fortis*; and afterwards put in the cloth, stir it about very well, and very swiftly, boil it for two hours, and let it remain in the suds twelve hours, and then rinse it out.

*To finish it.*

Take four pound of *madder*, an ounce and half of *gummigutta*, an ounce and half of purified *pot-ashes*, one pound of wheat-bran; mix them in water, and pour them with the liquor into the suds; then stir it, and work it as is proper, that it may not be spotted, and you will find this an extraordinary dye.

*To dye wool or silk of the Polish RED.*

For every pound of wool or silk take a pail-full of water, warm it, and put in four ounces of galls pulveriz'd; and when it begins to boil, put in the *madder*, which is to be proportioned according to the depth or lightness of the dye; stir them together, and dye the silk or wool for a quarter of an hour; and while it is boiling put in some pot-ashes, and dye it a quarter of an hour more, then rinse it out, and you have the true *Polish red*.

*To dye a brown RED.*

First dye the stuff *red*, then having mix'd slacked *lime* and *brasil* together, boil them, and then pass the stuff through it once or oftener.

Some persons make use of pot-ashes lye, but that sometimes renders the dye too deep or brown; and lime is really preferable.

But particular care must be us'd in this operation, for if it is work'd too slowly, it is very apt to spot.

REFINING, is the art of purifying a thing, or of rendering it finer, cleaner, and purer: It is chiefly understood of metals, sugar, and salts.

RE.

## R E F

### REFINING of GOLD.

This is perform'd three ways; *viz.* either with *antimony* sublimate, or *aqua-fortis*; the last of these is the most usual, and least dangerous of them all, and is call'd *depart* or *parting*.

To Refine gold *with antimony*, they make use of a wind-furnace, and a common crucible of a size answerable to the quantity of gold to be refin'd; always taking care that the gold and antimony, both together don't fill the crucible more than half full.

After the *gold* is melted in the crucible, the *antimony* is thrown in in powder: The proportion of the *antimony* to the *gold* is eight ounces to a pound; if the *gold* be between sixteen and twenty-two carats fine; if it be under sixteen carats, then they use five quarters of a pound to eight ounces of *gold*; and still the greater quantity of *antimony* is requir'd, the coarser the *gold* is.

As soon as they have put the *antimony* into the crucible, they cover it, and after they have charg'd the furnace with charcoal, they put on the capital, which is let to stand 'till such time as the crucible is left quite bare; then they take off the capital, and leave the crucible to cool in the furnace of itself, 'till such time as they can take it out by the hand; then they break it, to get out the button or culot, which is a mass of fine gold remaining at the bottom, with the *faeces* of the *antimony*, the *silver* and *copper* alloy, and sometimes little particles of *gold* itself over it.

But notwithstanding the *gold* thus prepar'd is very pure, yet the antimony gives it such a harsh brittle quality, that it ceases to be ductile, and must be softened by the fire with *salt-petre* and *borax*, to bring it to itself.

In order to this operation, they prepare what is call'd a *dry-coppel*, which is a coppel made of crucible earth, which does not imbibe like the *coppels* made of ashes.

When the *coppel* has been sufficiently heated in the *refining* furnace, they put the *gold* into it, and cover it up with charcoal.

As soon as the *gold* is dissolved, which is very soon, by reason of the remains of the *antimony*, they blow it with the bellows to drive the mineral entirely away, which now goes off in smoke; and add to it, as soon as the fumes cease, a little *salt-petre* and *borax* in powder, which collect the impurities, which remain'd upon the dissolution, and fix the *gold* in the *coppel* in form of a plate.

Then the *gold* is taken out of the *coppel*, and melted again in a crucible, with an addition of two ounces of *salt-petre* and *borax* in powder, to each eight ounces of *gold*, as soon as it has ceased to fume; and then it is cast into an ingot, which upon trial is found to be twenty-three carats, twenty-six thirty seconds finer.

As

## R E F

As to the particles of gold, which may have been left behind with the alloy, in the fæces of the *antimony*; they get them out by a *dry-coppel*, with the same meltings and ingredients, as were used in softening the former.

And when they are certain by the *essay* of the share of gold, which that matter contains; they *refine* it to separate the copper; and afterwards make the depart.

As for the gold which may be left sticking to the *dry-coppels*; they get that out by breaking and pulverizing the crucibles, and by repeated washings of the powder of them in several waters; much after the manner of the LAVADEROS; which see.

*The method of REFINING GOLD by means of sublimate.*

They begin the process like that with *antimony*, i. e. in the same furnace, with the same coal, the same fire, and the same crucibles.

When the *gold* is melted in the crucible, they cast in the sublimate; not in powder, but only broke in pieces.

The proportion is, if the *gold* be of twenty two caracts, an ounce or ounce and half, or even two ounces to eight ounces of *gold* to be refin'd; if of twenty caracts, three ounces; and if it be only from eighteen to twelve caracts, five or six ounces; in which last case, they part the sublimate into two; and put in one half at a time, with the *gold* in a new crucible; which, when the operation is over, leaves the *gold* of eighteen or twenty caracts, according as it was in fineness before.

When they have done this, they raise it by fire, as follows.

Having put the broken sublimate into a crucible, with the melted *gold*, they cover the crucible immediately to smother the mineral; and then furnish the furnace with charcoal, and put on the capital.

Then a quarter of an hour after they take off the capital, laying the crucible bare, and give it the cold air, i. e. blow off all the ashes and other impurities that may be floating on the liquid *gold*, with a pair of bellows, the nozzle of which is crooked.

This is repeated again and again, till all the impurities of the *gold* are carried off, by virtue of the sublimate; and that they find it of a bright glittering colour: after which, it is taken out of the crucible, and the *gold* is cast into an *ingot*.

This method of *refining* by *sublimate* is both cheaper and more compleat than that by *antimony*; but they are both exceedingly dangerous, by reason of their sulphureous and arsenical exhalations: the only difference in their malignity consists in this, that the poison of the *antimony* is slower than that of the *sublimate*.

Gold

## R E F

*Gold* may also be refin'd with lead and ashes; but this method is seldom used, excepting in essays.

### *The method of* REFINING SILVER.

There are two ways of doing this; the one is with *lead*, and the other is with *salt-petre*.

That perform'd with *lead* is both the best and cheapest; altho' that with *salt-petre* still obtains in many places, for want of workmen who understand the method of the operation of the former. The method of refining with *salt-petre* is as follows.

This operation is perform'd in a wind-furnace. They first reduce the *silver*, to be refin'd, into grains, about the size of a small pea; which is done by first melting it, and then throwing it into a tub of common water, and then heating it over again in a boiler.

This being done, they put it into a crucible; putting to every eight ounces of *silver* two of *salt-petre*.

Then they cover the crucible with an earthen lid, (in the form of a dome,) exactly luted; which lid however must have a little aperture in the middle.

The crucible being set into the furnace, and cover'd with charcoal, which is only to be lighted by degrees; at length they give it the full force of the fire, to put the metal into a perfect fusion. This is repeated three times successively, at an interval of a quarter of an hour.

After the third fire they uncover the furnace, and let the crucible cool; and at length break it, to get out the *silver*, which is found in a button or *culot*, the bottom of which is very fine *silver*; and the top mix'd with the *fæces* of the *salt-petre*, and the alloy of the *silver*, and even some particles of fine *silver*.

Then they separate the *culot* from the impurities, and melt it in a new crucible; and throw charcoal-dust into the dissolution, and work the whole briskly together.

Then they cover the crucible up again, and charge the furnace with coal, and give it a second fire.

Having done this, they blow off the ashes and impurities with bellows, from off the top of the metal; till it appear as clear as a looking-glass; and then they throw in an ounce of borax broken to pieces.

Then in the last place, they cover the crucible up again, and give it the last fire, and after this cast it into ingots, which are found eleven penny weight and sixteen grains fine.

To recover the *silver* that may be left in the *fæces* and *sco-ria*, they pound them, and give them repeated lotions in fresh water.

*As for the method of refining silver with lead, see the article*  
SILVER. RE-



## R E L

REFORMATION is represented [in *Painting*, &c.] by an antient matron in mean habit, a pruning-hook in her right hand, and in her left a book open inscribed,

——*Pereunt Discrimine nullo*

*Amiffæ Leges.*——

*i. e.* The laws are always defended, and never perish by any accident.

She is represented old, as most proper to reform and govern; the poor habit shews her exempt from luxury; the hook, the intrenching all abuses, ill customs and transgression.

RAPHAEL DA REGGIO DI MODENA born in 1552 scholar of *Fed. Zuccherò*, liv'd at *Rome*, excell'd in history, died in the year 1680, aged 28 years.

GIO ANTONIO REGILLO DA PORDENONE born in the year 1484, studied *Giorgione*, liv'd at *Venice* and *Ferrara*, excell'd in history-painting, died in the year 1540, aged 56 years.

RELIEVO } [in *Painting*, &c.] is the degree of force or  
RELIEF } boldness, wherewith the figures seem at a due distance, to stand out from the ground of the painting, as if really imboss'd.

The *relievo* depends much upon the depth of the shadow, and the strength of the light; or on the height of the different colours, bordering on one another; particularly on the difference of the colour of the figure, from that of the ground.

When the light is well chosen to make the nearest parts or figures advance, and well diffus'd on the masses; still insensibly diminishing, and terminating into a large spacious shadow, brought off insensibly; the *relievo* is said to be bold, and the *clair-obscuré* well understood.

RELIEVO } [in *Sculpture*, &c.] is apply'd to a figure,  
RELIEF } which projects or stands out, prominent from the ground or plan, whereon it is form'd; whether that figure be cut with the chissel, moulded or cast.

There are three kinds or degrees of *relievo*; viz *alto*, *basso*, and *demi-relievo*.

*Alto-relievo*, *haut relief* or *high relievo*, is when the figure is form'd after nature, and projects as much as the life.

*Basso relievo*, *bass relief* or *low relievo*, is when the work is rais'd but little from the ground, as in medals, and the frontispieces of buildings; particularly the histories, festoons, foliages and other ornaments of friezes.

*Demi relievo* is when one half of the figure rises from the plan, *i. e.* when the body of the figure seems cut in two; and one half of it is clapp'd upon the ground: when in a *basso relievo*, there are parts that stand clear out, detach'd from the rest, the work is call'd a *demi-basso*.

R.E.

## R H E

**RELIGION** is represented [in *Painting*, &c.] as a woman clothed in a silver veil, with a garland or mantle of white, fire in her left hand, in her right a book, and a cross and elephant by her.

Veiled, because she has been always secret; the cross is the victorious banner of true religion; the book is the scripture; the elephant is an emblem of Religion, he adoring the sun and stars.

**RE** **REMBRANT** *van Rheyn*, born in the year 1606, a scholar of *Lasman* of *Amsterdam*, liv'd in *Holland*, excell'd in history and portraits, died in the year 1668, aged 62. He used this mark

**GUIDO RENI** born in 1575, scholar of *Denis Calvert*, and the *Carraches*, liv'd at *Bologna* and *Rome*, excell'd in history, died in the year 1642, aged 67 years.

**RENOWN** is represented [in *Painting*, &c.] as a man of a pleasant aspect, well-proportioned Limbs, clothed with a cloth of gold, mix'd with purple, adorned with a garland of red hyacinths, and a gold chain, leaning upon *Hercules's* club with one hand, and carries a lighted torch in the other.

His aspect imitates his virtuous mind, the robe shews him dignified, the hyacinth wisdom and prudence, the chain honour, the club the ideas of all virtues, the torch denotes splendor acquired by his illustrious exploits.

**REPOSE** [in *Painting*] is a term us'd for certain masses or large systems of assemblages of light and shade, which being well conducted, prevent the confusion of objects and figures, by engaging and taking up the eye, so as it can't attend to the other parts of the painting for some time; and thus leading it to consider the several groups gradually, and as it were to proceed from stage to stage.

**RE** or **GR** **GASPAR REVERDIN**, or *Ravenstein*, his pieces are lascivious; and two of them represent courtezans sporting together; he us'd this mark.

**REWARD** is represented [in *Painting*, &c.] by a man clothed in white with a golden girdle, a palm with an oak-branch in his right hand, and a crown and garland in his left.

The oak and palm denote honour and profit, the principal parts of recompence; the garment and girdle truth, when recompence is accompanied with virtue; for good done to those that deserved it not, is not reward.

**RHETORICK** is represented [in *Painting*, &c.] by a fair lady richly clothed, with a noble head-dress, very complaisant, holds up her right hand open, a scepter in her left with a book; on the skirt of her petticoat are these words, *Ornatus persuasio*, of a ruddy complexion, with a chimæra at her feet.

Fair

## R I V

Fair and complaisant, because there is none so ill-bred that is not sensible of the charms of eloquence; her open hand shews *rhetorick* discourses in a more open way than *Logick*; the scepter her sway over mens minds; the book, study requisite; the motto denotes its business; the chimæra the three precepts of it, judicial, demonstrative, and deliberative.

**R** or **AR** or **SP** JOSEPH RIBERA, called SPAGNOLETTO, used these three marks, at different times.

GIOSEPPE RIBERA known by the name of SPAGNOLETTO, scholar of *Michael Angelo da Caravaggio*, liv'd at *Naples*, excell'd in history and half figures, died in the year 1647, aged 60 years.

DANIELE RICCIARELLE da VOLTERRA born in 1509, scholar of *Baldassar Peruzzi de Siena*, liv'd at *Rome* and *Florence*, excell'd in history and sculpture, died in 1566, aged 57 years.

JOHN RILEY was born in *London*, in the year 1646; he was an excellent *English* portrait-painter, who arrived to his great skill in that province, thro' the instruction of Mr. *Zouft* an extraordinary *Dutch* master, of whose manner he retained much; tho' perhaps with him, he wanted the choicest notions of beauty; but for the painting a face, few have exceeded him, in any nation whatsoever. Had not the gout (an enemy to the sedentary and studious) carried him off; we might have opposed a *Riley* to a *Venetian Bombelli*, or to all that the *French* academy has produced in that manner of painting to this day. His fame rose upon the death of Sir *Peter Lely*; at which time, he was recommended to the favour of King *Charles II.* by Mr. *Chiffinch*, whose picture he drew. He was afterwards employ'd in drawing some of the King's children, and at last, his Majesty sat to him himself. He also drew King *James II.* and his Queen, and King *William* and Queen *Mary*, upon the Revolution, when he was sworn their Majesties painter. He was very diligent in the imitation of nature, and studying the life rather than any particular manner, by which he attain'd a pleasant and most agreeable Stile of painting. His excellence was confin'd to a head, a great number of which do him justice; even in the best collection of our nation. He was modest and courteous in his behaviour, and of an engaging conversation; he died *anno* 1691, aged 45 years, and lies buried in *Bishopsgate Church*.

RIVERS, in painting of them, you ought to consider the properties and adjuncts of each; which usually consist in some notable action or accident, done or happen'd near them; some famous city, fruits or reeds situated upon or near their banks;

## R O C

some fish only proper to their Streams; or recourse of shipping from all parts of the world.

Therefore it will be proper to place the city upon their heads; their fruits in a *cornucopia*; reeds, flowers, and branches of trees in their garlands and the like.

TIBER, a river of *Italy*, is express'd (in the *Vatican* in *Rome*) in a goodly statue in marble, lying along; (for so they must be drawn) holding under his right hand, a she-wolf; with two little infants sucking at her teats, leaning upon an urn or pitcher, out of which issues forth its stream; in his left, a *cornucopia* of delicate fruits: of a grave countenance, and with a long beard; a garland of flowers upon his head, and resting his right leg upon an oar.

NILUS, the river of *Egypt*, is represented (in the *Vatican* at *Rome*) cut out in white marble, adorn'd with a garland of sundry fruits and flowers; leaning with his left arm upon a *Sphynx*, and a stream issuing from under his body; under his left arm, a *cornucopia* full of fruits and flowers on one side, with sixteen little children smiling, and pointing to the flood.

The *Sphynx* was said to be sometime a monster, which remain'd by Nilus: the Crocodile is so call'd ἀπὸ τοῦ κρόκου δειλᾶν from his hating saffron: it is the most famous monster of *Egypt*. The sixteen children signify the sixteen cubits in height, the uttermost of the flowing of Nilus; their smiling looks, the advantageousness of the river; which glads the hearts of the Sun-burnt inhabitants.

PADUS } a river of *Italy*, is represented with the face of  
PO } an ox, having a garland of reeds and poplar on his head.

This river takes its name from the sisters of Phaeton, whom the poets feign to have been destroy'd by lightening and drown'd here: the head of the ox intimates its horrid noise and roaring, whose crooked banks bear a resemblance to horns, by its sides grow many reeds and much poplar.

NIGER, a river of *Africa*, is represented like a black-moor with glory, or a coronet of Sun-beams, falling upon his urn; having by his side a lion.

By the Sun-beams and black are signified the climate which lies under the torrid zone, the inhabitants of which are blacks or moors; the lion is that, which the countries Mauritania and Barbary breed, being the fiercest in the world.

ROCAILLE is those green and yellow grains, of which beads are made; which are worn by country girls, and great quantities of which are exported to *Africa* and other foreign parts, and worn by the negroes, &c. as necklaces, bracelets, &c.

This

## R O E

This is used in painting on enamel or glass very frequently, tho' it be ill qualified and full of impure lead. Therefore you must chuse the most clear and transparent *rocaille*, and such as is least charged with colour; yet still this is very far from being so fit for the uses as it should be.

And therefore it will be better in enamel, to use the crystalline matter made with SATURNUS GLORIFICATUS (which see.) However, I shall give the preparation of *Rocaille*, and how to compound it.

To make the *yellow grains*, you must take a pound of fine white sand, and three pound of *minium*, mix and pound them together very well in a mortar, and put the whole into a strong crucible, covered and luted; dry the lute, and set it afterwards into a glass-house or wind-furnace, where the fire is violent, to reduce this matter into glass. Having thus finish'd the *Rocaille*, make it up either into grains, or any other shape you please.

The method of making the *green* is quite contrary to that of the *yellow*: for this put three pound of fine white sand to every pound of *minium*, and it will be very compact.

This stuff will alter its colour, and become a pale red in melting; and these are the compositions and way of making this *Rocaille*, which is us'd by most workmen. Thus you see there is no preparing it without lead, which renders it so full of impurity.

ROCHETTA is a name commonly given to all ashes or *polverine* that is us'd in making of glass.

This us'd formerly to be brought out of *Syria*, from the eastern parts of it, where it grew in great abundance: but at present it comes from *Alexandria*, from *Tripoli*, and from *Spain*.

That which comes from *Syria* is the ashes of a certain herb, which grows there in great plenty call'd *Kali*; the *salt*, which is extracted from it, is far whiter than that of *soda*; and hence the salt of it helps to make a very good crystal, but something inclining towards a sky-colour; the beauty is owing to the *oriental polverine* (or that of the *Levant*;) whereas that of *soda*, which is more plentiful, makes the crystal more blue, and has not that shining brightness, nor the same whiteness and beauty. See POLVERINE.


PETER ROESTRATEN was born at *Haerlem*, and a disciple of *Hans Hals*, whose manner he at first followed; but at last falling into still life, and having performed an extraordinary piece, that Sir *Peter Lely* shew'd to King *Charles*, and which his Majesty approved, he was encouraged to pursue that way, which he continu'd to his dying day. He was an excellent master in that kind of painting, viz. on gold and silver plate, gems, shells, musical instruments, &c. to all which he gave an unusual

## R O S

lustre in colouring, and for which his pictures bear a good price. 'Tis said, that one day promising to shew a friend a whole length of his master *Hans Hals*, and thro' a little delay his friend growing impatient to see it, he suddenly called up his wife, (his master's daughter, whom he had married) and told him she was a whole length of that master. He died about 27 years ago, and lies buried in *Covent-garden Church*.

**GIOFRANCESCO ROMANELLI**, born in the year 1612, scholar of *Peter de Cortona*, liv'd at *Rome*, excell'd in history, landskips, battles, and died in the year 1673, aged 59 years.

**GIULI ROMANO**, scholar of *Rafaele*, liv'd at *Rome* and *Mantua*, excell'd in history and architecture, died in 1546, aged 54 years.

**SALVATOR ROSA**, born in the year 1614, scholar of *Daniele Falconi*, liv'd at *Rome*, excell'd in histories, landskips, and battles, died in the year 1673, aged 59 years. He us'd 

**SUSANNAH PENELOPE ROSE**, wife to Mr. *Rose* the jeweller now living, and daughter to Mr. *Richard Gibson* the dwarf before-mentioned, by whom she was instructed in water-colours, and wherein she performed to admiration. She not only copied finely, but also drew exceeding well after the life in little. She died about 30 years ago, at 48 years of age, and lies buried in *Covent-Garden church*.

**ROSES** [*to paint in miniature*] having calk'd and drawn the red *rose* in carmine, let your first lay be a very pale mixture of carmine and white; then lay in the shades with the same colour, but with less white, and at last use carmine alone, but it must be very thin at first, adding however to the body of it more and more, as the piece advances, and that the shades grow darker and darker, and this is to be done with broad bold strokes. To conclude, you finish the same colour with fine strokes, which must be turn'd like those of the graving, if you copy after a print, or like the turn of the leaves of the *rose*, if you copy after a painting or nature; scumbling the whole, and touching up the strongest lights and the edges of the brightest leaves with white and a little carmine. You must always make the heart of the *rose*, and the shady side darker than the rest, and use a little indigo in shading the first leaves, especially when your *roses* are blown, to make them appear a little fading; the seed is done with gambooge, mixed with a little bladder-green for shading.

Your streaked *roses* must be paler than the others, that the streaks may be more conspicuous, which must be done with carmine, somewhat deeper in the shades, and very bright in the lights, hatching continually with fine strokes.

For



## R O T

For white *roses* lay on white, and proceed and finish as in the example of red *roses*, but with black and white and a little bistre, and make the seed somewhat yellower than before.

For yellow *roses* lay on masticote, and shade with gambooge, gall-stone, and bistre, heightening the lights with masticote and white.

The stalks, the leaves, and the buds of all sorts of *roses*, must be laid in with verditer, mixed with a little masticote and gambooge, and to shade them use iris-green, with less of the other colours when the shades are deep: the wrong side of the leaves must be bluer than the other, therefore you must lay on sea-green, and mix it with iris-green to shade with, making the veins or ribs of that side lighter than the ground, and those of the right side deeper.

The prickles upon the stalks, and the buds of the *roses*, are made with slight touches of carmine in all directions, and those on the stem of the tree; and larger branches are struck in with verditer and carmine, and shaded with carmine and bistre, making also the bottom of the stems and stalks more reddish than the tops; that is, you must mix green with carmine and bistre to shade with.

The *PASS-ROSE*; this is to be done the same way as the *French marigold*, and the green of the leaves the same; but the veins must be of a deeper green.

ROSIN is a resinous matter, prepar'd from the juice of the pine-tree, ordinarily us'd for making wax, &c.

We have in the *Philosophical Transactions*, the method of preparing this drug in the southern parts of *France*.

First, they pare off the bark of the pine, to make the sap run down into a hole made at bottom to receive it; as the juice runs, it leaves a cream or crust a-top; which being tempered with water, is sold fraudulently for white bees-wax.

When they have got a quantity of the juice, they strain it through a basket, and what runs through it is the common turpentine.

What stays behind they mix with water, and distilling it in an alembick, the matter that rises is the oil of turpentine, and the calk that remains is the common *rosin*.

ROSSO of FLORENCE, born in the year 1496, studied with *Michael Angelo*, liv'd at *Florence*, *Rome*, and *France*, excell'd in history and architecture, died in the year 1541, aged 45 years.

**MR** MARTIN ROTA SABINIENSE sometimes mark'd with these words, *Sabenzanus fecit*.

HANS ROTTENHAMMER born in the year 1564, studied under *Donawer* and *Tintoret*, liv'd at *Venice* and *Bavaria*, excell'd in history, died 1604, aged 40 years.



## R U B

**JAMES ROUSSEAU** was a *French* landskip-painter, born at *Paris*; he had a great part of his instruction from *Herman van Swanevelt*, who married a relation of his. He afterwards travell'd to *Italy*, where he studied several years, and perfected himself in architecture, perspective, and landskip, by following the most eminent painters in that kind, and studying the antiquities. Returning to *Paris*, he was wholly employed some years by the king at *Marly*, and elsewhere; but leaving that service upon the persecution, he retired to *Swisserland*, from whence he was invited to return by M. *Louvois*, chief minister of state, upon all the promises of indemnity imaginable, to finish what he had begun; which refusing to do, he notwithstanding made a present to the king of his drafts and designs for that purpose, and moreover nominated a person to perform the work. After a little stay in *Swisserland*, he came for *Holland*, from whence he was invited over to *England* by the Duke of *Montague*, who employed him at his stately house in *Bloomsbury*. Upon his coming over hither, he farther improved himself in the study of landskip, and added his beautiful groups of trees to the many draughts he made after nature in several parts of this kingdom; his views are commonly sylvan and solid, his water of all kinds well understood and transparent, his fore-grounds great, and generally well broke; and in a word, the whole very agreeable and harmonious: his skill in architecture made him often introduce buildings into his landskips, as he did also small figures, after the manner of *Poussin*. Many of his pictures are to be seen at *Hampton-Court* over the doors, but far greater numbers at his Grace the Duke of *Montague's* in *Bloomsbury*; where, in conjunction with *La Fosse* and *Baptist* the flower-painter, he did the stair-case and many other parts of that magnificent fabrick. He had also due encouragement from that noble peer, who allowed him a pension during life, which however lasted but few years after the finishing of his Grace's house. He died in *London* forty years ago. He executed with his own hand several prints in *aqua-fortis* after his own landskip, from whence we may form a better idea of this master's work; these plates were in possession of the late Mr. *Cooper* the print-seller.

R. S. signifies *Ravignanus sculpsit*.

R. S. M. A. } See **RAIMONDI** of Bologna.

R. S. M. F. }

R. S. M. R. *Mark of Ravenna* put this mark to *Raphael Sancio Urbino's* pieces.

R. V. A. Sig. *Gaudensis sculpsit*, the mark of several pieces invented by *Peter de Cortona*.

Sir **PETER PAUL RUBENS**, born in 1577, scholar of *Adam van Noort*, and *Otho Venius*, and studied in *Italy*, liv'd at *Antwerp*,

## R U B

*Antwerp, Italy, and England*, excell'd in history and portraits, died in 1640, aged 63.

RUBY, a sparkling gem of the first rank among precious stones; there are but two places in the East, where *rubies* are found, the kingdom of *Pegu*, and the isle of *Ceylon*.

The mine of *Pegu*, where it is found in greatest plenty, is in the mountain *Capelan*, twelve days journey from *Siren*, the residence of that prince: the finest *rubies* brought from hence do not exceed three or four caracts; the king reserving all the larger to himself.

In the island *Ceylon*, the *rubies* are found in a river, which descends from the mountains towards the middle of the island: some few are also found in the ground.

The *rubies* of *Ceylon* are ordinarily brighter and more beautiful than those of *Pegu*; but they are rare, the king of *Ceylon* prohibiting his people to gather them, or traffick with them.

There are *rubies* also found in *Europe*, particularly in *Bohemia* and *Hungary*, especially in the former, where there is a mine of flints of divers sizes, which upon breaking are sometimes found to contain *rubies*, as fine and hard as any of the Eastern ones.

The value of *rubies*, from one caract or four grains, is reckon'd in *Dictionnaire de Commerce* as follows;

	<i>l.</i>	<i>s.</i>	<i>d.</i>
A <i>ruby</i> of one caract is worth	1	15	0
two caracts	9	0	0
three caracts	22	10	0
four caracts	33	15	0
five caracts	45	0	0
six caracts.	67	10	0
seven caracts	84	0	0
eight caracts	106	0	0
nine caracts	150	0	0
ten caracts	216	0	0

*Rubies* are usually distinguished into two kinds, the *balasse* and *spinelle*; but there are some authors who distinguish them into four kinds, *viz.* the *ruby*, *rubicelle*, *balasse*, and *spinelle*.

It is their different degree of colour that makes their different value and beauty.

The *balasse ruby* is of a vermeil rose-colour; the *spinelle* of a flame colour.

It is said that the inhabitants of *Pegu* have the art of heightning the redness and brilliant of rubies, by laying them in the fire, and giving them a certain proper degree of heat.

The *ruby* is form'd in a stony substance, or marcasite of a rose-colour, call'd mother of *ruby*; it has not all its colour and

## R U B

lustre at once; but they come to it by degrees. At the first it grows whitish, and as it approaches to maturity, becomes *red*. Hence it comes to pass, that we have *white rubies*; others half white, half red; others blue and red, call'd *sapphire rubies*.

When a *ruby* exceeds twenty caracts, it may be call'd a carbuncle, the name of an imaginary stone, whereof the ancients and moderns have given us so many descriptions.

There are several manners of counterfeiting *rubies*; and some have carried the imitation to that length, that the most able lapidaries are sometimes overseen.

*Furetiere* assures us, that there have been *rubies* in *France* of 240 caracts, (tho' this is not credited.) *Tavernier* tells us he saw one once in the *Indies* of fifty caracts, which he had a mind to have bought. And he adds, that the king of *France* has larger *rubies* than any of the *Great Mogul*.

### To make oriental RUBIES.

The *ruby*, which is a precious stone, diaphanous and very radiant, ought to have the colour of blood and scarlet, and clear *lacca*, and shew about the edges of its fire a little *azure* colour.

This stone is found in the island *Ceylon*, and in the river of *Pegu*, in a rocky matter of a rosy colour, which is the *matrix*, wherein it is generated and nourished. And if that rocky matter be transparent, it yields the *balasse ruby*.

Sometimes there are found such fine and large *rubies*, that some have mistook them for carbuncles. If any *ruby* ever merited that name, it was that of Queen *Elizabeth* of *Austria*, Dowager of *Charles IX.* which after her death she left to the Emperor *Rudolphus II.* her brother. It had been purchas'd long before for 60,000 ducats, which was in those times a very considerable sum.

To imitate this fine colour, take four ounces of the matter, prepar'd with natural crystal, and *Saturnus glorificatus*, two ounces of *crocus Martis* prepar'd, one ounce of *verdigrease*, two ounces of *Mercury* calcin'd *ad rubedinem*, and two ounces of *sal-gem*, reduce all to fine powder, mix them together, put them into a crucible, cover it, and lute it, and set it in a glass-house furnace for three days; then take it out, and set it into the furnace, where glasses are set to anneal, there to cool by degrees for twelve hours; then break the crucible, and you will find the matter ting'd of a fine *ruby* colour, which you may divide, cut, and polish.

### To make Balasse Ruby.

This precious stone is of the nature of a *ruby*, since it is found in the same matter as that; it is a very bright colour, resembles a vermilion rose and crimson, being mix'd of a natural red, and of a sky-colour; we will now shew the way to imitate it

Take

## S A L

Take six ounces of *Saturnus glorificatus* mixed with natural crystal, half an ounce of *crocus Martis*, half an ounce of *Mercury* calcined *ad rubedinem*, two drachms of *sal-gem*, the whole reduced to an impalpable powder, and mixed well together. Then put it in a crucible, cover'd close and luted, and so into a glass-house furnace for three days, proceeding moreover as in the preceding article, and you'll have a very fine matter the colour of a *balass ruby*.

**RF** GUIDO RUGGERI *fecit*, is the mark of several pieces, painted at *Fontainbleau* by Abbot *Primaticcio*, and engrav'd by the above-mentioned, who accompanied him into *France*.

S.

**A**NDREA SACCHI born in 1601, scholar of Cavalier *Giaseppini Albani*, liv'd at *Rome*, excell'd in history and architecture, died in the year 1661, aged 60 years.

**SV** JUSTUS SADELER us'd this mark: at other times he added *Sadeler IS exc.*

SADNESS, *see* SORROW.

**SS or S** SAENREDAN, a *Dutchman*, us'd this mark; he sometimes us'd the letter I, with an S entwin'd about it, his christian name being *Hans* or *John*; he died in the year 1607.

**ATS** ANTHONY SALAMANCA, or *Ant. Sal. exc.* 1543.

**S** ANDREA SALMINCIO of *Bologna*, an engraver and scholar of *Valesio's*, us'd this mark.

SALT-PETRE is a kind of salt, both natural and factitious, of very great use in dying, the making of glass, and of *aqua fortis*, for the dissolution of metals.

The minute parts of *salt-petre*, or its crystals, are in the form of needles, tho' some will have them to be triangular, as those of *alum* are triangular, and those of *common salt* cubical.

When they are perfect, they are said to be fistulous or hollow, like *capsulae*.

Of natural *salt-petre* there are two kinds; the first form'd by a natural crystallization of saline sulphureous juices, distilling in caverns, or along old walls.

This is what is call'd *salt-petre of the rocks*.

The second kind of natural *salt-petre* is produced from the water of a dead lake in the territory of *Terrane in Egypt*, call'd the *Nitrian waters*, exalted and concocted by the heat of the sun, much after the manner of our bay-salt.

*Artificial, or factitious, salt-petre*, is also principally of two kinds; The

## S A L

The first is call'd by some *mineral salt-petre*, and is found in several places of the kingdom of *Pegu*, and about *Agra* in villages, which were antiently populous, but now desart.

It is also found in some places along the banks of the *Wolga*, that famous river, which after it has watered a good part of *Muscovy*, empties itself into the *Caspian-Sea*.

The natural *salt-petre* is drawn from three different kinds of mineral earths, *black*, *yellow*, and *white*.

The best is that drawn from the *black*, as being purest from *common salt*, and standing not in need of any purifying, after it comes to us, to fit it for making gun-powder, as the rest do.

The method of working it is as follows;

They dig two flat pits, one of which they fill up with the mineral earth, turning water upon it for some time, and then tread it with their feet into the consistence of pap, and then let it stand two days for the water to imbibe, and extract all the salt out of it.

Then they pass the water into another pit, where being let stand for some time, it shoots and crystallizes into *salt-petre*.

This is boil'd once or twice, according as they would have it more or less pure, keeping continually scumming it, and filling it out into pots, containing each about twenty-five or thirty pounds each, and exposing these to the air in clear nights; by which means, if there be any impurity, it sinks to the bottom; afterwards they break the pots, and dry the salt in the sun.

Mr. *Homberg* observes, that all the *salt-petre* we now have, is drawn either from earths moistened and manur'd with the excrements of animals, or from old walls, and the plaister of ruined buildings, which have been fill'd with sulphureous matter, as well from the animals, which inhabited them, as the soot penetrating them, and the air encompassing them. But however we usually distinguish *salt-petre* into *natural* and *factitious*.

The second kind of *artificial* or *factitious salt-petre* is that which is prepar'd from nitrous matters, collected in old buildings, dove-houses, the middle of ancient ruins, &c. by means of *lixiviums* or lyes made of wood-ashes, and sometimes of those of herbs.

Of this there are great quantities made in *France*, particularly in the arsenal at *Paris*, where there is a corporation of *salt-petre* makers appointed for the purpose.

The *salt-petre* gain'd thus, they refine by boiling it three or four times, and passing it successively through several lyes.

Some naturalists pretend that the earths, which have already serv'd for *salt-petre*, may be re-animated, and made fit to serve again, by keeping them covered for twelve or fourteen years, and watering them with the scum, &c. of the *salt-petre*, and even with brine.

Good

## S A N

Good common *salt-petre* should be well clean'd, white, dry, and as free of *salt* as possible: The best refin'd *salt-petre* is that whose crystals are the longest, largest, and finest.

The philosophers generally allow the air to be impregnated with a *volatile nitre*, or *salt-petre*, which is thence communicated to plaister, mortar, &c. It is probable it may derive it from foot and smoke, which are actually found to abound with volatile salt of a nitrous nature.

Dew and rain are suppos'd to fertilize the ground principally, by their bringing down this nitre.

*Salt-petre* has a property of rarifying or expanding itself to a prodigious degree. It is hence that gun-powder derives its force, of which *salt-petre* is the principal ingredient.

It is computed, that when inflam'd, it takes up above 10,000 times the space, that it possess'd before.

FRANCESCO SALVIATI, or FRANCESCO *de ROSSE*, born in the year 1510, scholar of *Andrea del Sarto*, and *Baccio Bandinelli*, liv'd at *Rome* and *Florence*, excell'd in history and portraits, died in the year 1563, aged 53 years.

RAPHAEL SANCIO *da URBINO*, prince of the modern painters, born in the year 1483, scholar of his father *Giovanni*, and *Pietro Perugino*; for colouring, of *Fra. Bartolomeo*.

### To dye SAND-COLOURS.

#### *To dye a Sand-colour.*

Take water a sufficient quantity, *nut-galls* in powder one pound, *madder* six ounces, *fustick* four ounces; let them boil and enter your cloth, (twenty yards of broad cloth;) let it boil two hours, and handle it, and so cool it, add *copperas* four ounces; enter your cloth at a boiling-heat, let it boil a quarter of an hour, and handle it, and so cool it again. If you will have it fadder, put in more *copperas*; enter your cloth again, and boil another quarter of an hour, cool and wash.

#### *Another Sand-colour.*

Take water a sufficient quantity, *red-wood* ground two pound and a half, *sumach* one pound; enter your cloth, boil two hours, and cool; add *copperas* two pounds, enter your cloth again, and fadden as you think fit, &c.

#### *Another Sand-colour.*

Take water a sufficient quantity, *nut-galls* one pound in powder, boil them a little, then add *red-wood* ground *q. s. viz.* according as you would have the sand-colour, light or dark; enter your cloth, boil an hour, and handle it. If you would have it darker, add a little wood-foot, enter your cloth, and boil pretty well, and cool; after, fadden as you please with *copperas*.

SANDARACH is a white gum, oozing out of the trunk and thick branches of the great Juniper-tree, by incisions, made in the heats of the summer.

The

## S A N

The little or common juniper yields very little *sandarach*; its fruit yields wines, oils, salts, spirits, and extracts of some repute in physick. It is also a necessary ingredient in varnish.

The best is in fine white tears, free of dust; some will have it, that the *sandarach* of the juniper is not the right, but only that of the *oxycedron*.

SANDEVER is the dross of glass, or the scum that arises from the ashes of the herb *Kali*, us'd in the making of glass.

SANDIX a kind of minium, or rather red masticote, made of cerus calcin'd and rubefied, call'd also a factitious *sandarach*. It is but little us'd in painting, the real minium or *vermilion*, to which it is substituted, making a much better, brighter, and most durable colour.

SANGUIS DRACONIS, or DRAGON'S BLOOD, a gum. The *Indian dragon's blood* is a gum, that distils or drops from the trunk of several trees, whose leaves are like sword-blades of half a foot long, and of a green colour; at the bottom of which grow round fruit, of the size of our cherries, that are *yellow* at first, and afterwards *red*, and of a beautiful *blue* when ripe; of which, when you have taken off the first or outward skin, it appears like a sort of *dragon*; and thence the tree is call'd *dragon*, and the juice *dragon's blood*.

The inhabitants of the country cut the trunks of the trees, and there presently flows a fluid liquor, that is as *red* as blood; which hardens as soon as the sun is gone off it, and forms itself into little brittle tears or crumbs, of a fine *red* colour.

When the first sort is fallen, there drops another, which is sometimes brought wrapt up in the leaves of the same tree, of the figure and size of a pigeon's egg, or of the length and thickness of one's little finger.

Chuse *dragon's blood* in little tears, clear and transparent, and very brittle, (but the best sort is very scarce.) That which comes in little reeds or flags, ought to be dry and easy to break; and which, when scor'd on paper or hot-glass, leaves behind it a beautiful red stain; upon which account, anciently, they us'd it to paint glass red.

This being diffus'd, or digested, in spirits of wine, yields a delicate blood-red colour; but in water, oil, or other liquors, scarce any colour at all.

This gum being finely ground, is us'd by goldsmiths for enamel; by jewellers to set foils under their precious stones for their greater lustre; by painters, varnishers, and jappanners, to make varnish or japan, by mixing it with *common* or *shell-lac*, or *seed-lac* varnish.

The *dragon's blood* of the *Canaries* is a gum, that flows from the trunk and large branches of two different trees, after having  
been



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been cut, the one of which has a leaf like the pear-tree, but a little longer; and the flowers bear a resemblance to the tags at the end of long laces, of a very fine red.

The leaves of the other come nearer to those of the cherry; and the fruit is yellow on the edges, of the bigness of an hen's egg, in which is found a nut of the shape of a nutmeg, which contains an almond or kernel of the same figure and size.

The islanders cut the trunks of those trees, from whence drops a red gum, which they make into balls of different sizes. Some soften the *dragon's blood* by the means of hot water, and so put it into reeds, in the same manner as those that come from *India*.

The *Dutch* furnish us with a sort of *dragon's blood*, which is in flat cakes, of a very deep red, and shining, as well on the outside as within; which being broke, is of a very fine red colour.

This *dragon's-blood* is nothing else but a mixture of the true *dragon's-blood* with other gums; which is so apparent, it is easy to discover, by breaking the mats, and casting it hot upon palm-mats.

There is also another sort of this brought from *Holland*, made of gum *Arabick*, or that of *Senega*, with a tincture or dye of the *Fernambouke Brasil*. But these two sorts being counterfeits, should be avoided, as not being comparable with the true.

*To make glass of a SAPHIRE colour.*

To imitate the colour of *sapphire* in glass, which is of a clear and transparent blue, you must put to half an hundred pound of frit of *rochetta*, half a pound of *zaffer* prepar'd, with half an ounce of *manganese* of *Piedmont*, also prepared, as we have shewn: well mix these powders with the frit, then put the whole into a pot in a furnace, letting the glass be well melted and purified; for the longer it remains on the fire, it becomes so much the finer, if you take care to take it out from time to time. Then mix it very well, and make an essay of the colour; and if it be not full enough, augment or diminish it as much as you think fit; then the glass may be wrought, and you will have a *sapphire* of the colour of the double violet of *Constantinople*, which the small dose of *manganese* produces.

*To give glass a finer Sapphire colour.*

Glass will have a much fairer *sapphire* colour, if in the room of frit of *rochetta*, you take good crystal frit, and add to it the same dose of powder, as in the preceding article. Of this glass thus tinged, you may make what works you please. You must not put the powder of *manganese* and *zaffer* on the melted glass, but mix it with the frit, as we have noted: for the colour the melted glass takes, is not so fine, as when the materials are first mixed.

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*To make a paste for Sapphire colour.*

The *sapphire* is very much esteemed for its beauty, which is a very clear sky-colour, and pleasant to behold. There are some whitish, like diamonds, others very blue, and some violet colour; the stone is soft, but easy to harden.

To make this paste, take two ounces of natural crystal prepar'd, four ounces and a half of *minium*, twenty-six grains of the blue smalts the painters use: the whole being well-pulverized, put them in a crucible, and cover and lute it well; then put them in the furnace to bake, as long time as before prescribed; and you'll have a fine violet colour approaching blue.

*Another oriental Sapphire.*

The paste for this *sapphire* will be nearer oriental than the former; take two ounces of natural crystal prepar'd, six ounces of *minium*, to which add two scruples of *zaffer* prepared, and six grains of *manganese* also prepared; the whole reduced to a fine powder: mix them well together, and put them in a crucible, and cover, and lute it well; then put them in the furnace to bake, the same space of time as before shewn, and you'll have an oriental *sapphire* of a very fine violet colour.

*To make a deeper oriental Sapphire.*

This paste for *sapphire* will be of a deeper colour than the former, you must put in two ounces of crystal prepared, five ounces of *minium*, forty-two grains of prepared *zaffer*, and eight grains of *manganese* of *Piedmont* also prepared; the whole reduced to an impalpable powder, and mixed well together.

Moreover proceed, observing well all circumstances, and you'll have a *sapphire* deeper than the preceding, somewhat tending to a violet colour, which you may work, polish, and set.

*Another very fine blue Sapphire.*

The blue colour of *sapphire* is no less agreeable than the violet, and it is the male of its kind. To make it, take one ounce of crystal in powder, add to it a drachm of salt of *vitriol*, three grains of *verdigrease*, one grain of *azure*; an ounce, one drachm and four grains of fine salt of *tartar*; the whole in fine powder: put it into a crucible, covered and luted, to be baked and purified, as we have heretofore shewn, and you'll have a very fine blue *Sapphire*, &c.

*Another fine Sapphire.*

The colours of these *sapphires* being different, by the dose and mixture of the ingredients, we will shew each in a chapter by itself.

Take two ounces of powder of *crystal*, two ounces of fine salt of *tartar*, five drachms twenty-four grains of *verdigrease*, and thirty-two grains of *azure*; the whole reduced to impalpable

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palpable powder, which you must set to bake and purify in a covered crucible in a glass-house furnace, as we have said before, and you'll have a very fine *sapphire*.

*The way to make a violet Sapphire.*

We shall shew several ways of making *sapphires* of our crystal of different colours. To make this, take one ounce of powder of *crystal*, one drachm of salt of *vitriol*, and nine drachms of fine salt of *tartar*, the whole in fine powder; then proceed further, as we have shewn in the preceding chapter, and you'll have a *sapphire* of a very fine violet colour.

*To make an oriental Sapphire.*

To imitate this precious stone with the matter prepared with *Saturnus glorificatus* and natural crystal, take ten ounces; add to them two drachms of the calx of gold, (*see the calcination of GOLD*;) mix these powders well together, and put them into a crucible covered with another: let them dry, and then set them in a glass-house furnace for three days, and do all that is directed as to the *oriental ruby*; and that mass will be a very fair *oriental sapphire*, which cut and polish at the wheel.

SARDOIN, or *Sardonian stone*, so call'd of *Sardinia*, is a precious stone of a blood-colour, half transparent; the same with that which is otherwise call'd a *cornelian*.

The most beautiful *sardoins* are those brought from about *Babylon*; those of *Sardinia* are of the second class.

There are other *sardoins*, and not contemptible ones, found near *St. Mauro* in *Albania*; and other very small ones about the *Rhine*, in *Bohemia*, *Silesia*, &c.

To give them the greater lustre, it is usual in setting them to lay silver leaf underneath. This stone is in most use for seals, because it graves easily, and takes a fine polish.

SARDONYX, a precious stone, that partakes partly of the *agate* or *onyx*. It is reddish, bordering on white, like the nail of the hand; in some the red inclines to yellow. It is brought from the *East-Indies*, *Arabia*, and *Bohemia*.

ANDREA DEL SARTO, born in the year 1478, scholar of *Pietro di Cosimo*, liv'd at *Florence*, excell'd in history-painting; died in the year 1520, aged 42 years.

SASHES *for windows as clear as glass.*

Take the finest vellum, or flink skin, without knots or flaws, seethe it with fine powder of pumice-stone well sifted, and having stretch'd the skin on a frame a little wet, let it dry in the shade, that it may harden the better; then take two parts of *nut-oil*, and one of *linseed*, and a little glass finely powdered, and two parts of fair water, and boil them all together in a glass on a tile, pretty near the fire, 'till the water evaporate; then with this brush over the sashes or vellums, and dry them moderately in

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in the sun, and they will be very clear and transparent, giving a more true and certain light to do business by than glafs.

*The manner of painting Cloth, or Sarsnet Sash Windows.*

Let the cloth or sarsnet be first strain'd tight to the frames, and there made fast; and when they be thoroughly dry, varnish them over with the following transparent varnish thus made.

Take a pound of good clear nut-oil, put it into an earthen pipkin, and add to it half a pound of good silver litharge in fine powder; set it on a small fire, but not to boil, and let it stand hot at least twelve hours, stirring it oftent in that time, (this adds a drying quality to the oil.) When it has stood thus long, pour it off from the litharge by inclination; then take a pound and a half of the clearest white rosin, beat it to powder, and mix it with the oil on a slow fire, always stirring it till the rosin be dissolved; then take it off, and put into it a pound of good clear *Venice* turpentine, and stir them all well together; then with a good brush let your sashes be thoroughly varnish'd over with this mixture, so that they may appear all over clear and transparent.

When this varnish is dry, then you may paint upon them what fancy you please with oil-colours, but landskip is most common and natural; for which purpose, the colours you mix ought to be such as are of a fine body, and apt to become transparent.

For these purposes, lake makes an excellent transparent ruby colour, and distill'd verdigrease makes an incomparable transparent green, orpiment makes an excellent transparent gold colour; umber and yellow oaker will become indifferent transparent, if thinly mixt: but for the rest, there are none that will lie clear in this work, but only according to the very thinness of their mixture with the oil.

The aforefaid varnish, as it is clear of itself, is an excellent varnish for paper windows, being much more transparent than any other composition, and more lasting; for the rosin and turpentine being made tough, when dry, by means of the oil mixt with it, does more powerfully resist the injuries of all weather than oil alone.

If any are troubled with weak eyes, and cannot endure a bright light, this varnish mixt with distill'd verdigrease, and paper windows, or sarsnet ones done over with it, will make an incomparable green light, very comfortable to the sight, and of great benefit to such as love not too much brightness: a note of good use, especially to all great students, whose sight is often much impair'd and weaken'd by poring too much upon their books; the whiteness of the paper being observ'd to be  
often

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often a great enemy to the sight of some men, the inconveniences of which, such a green light as this now mention'd, will infallibly prevent, beyond green reading glass spectacles, or any other contrivance, yet found out; the like benefit may some tradesmen also receive from it.

### *Colours for painting SATTINS.*

For a *black sattin* use lamp-black, ground with oil, and temper'd with *white lead*; and where you would have it shine most, mix *lake* with the *white lead*.

For *white sattin* use *white lead* (ground alone) and *ivory black*; which temper light or dark.

For *red sattin* use *Spanish brown*, (ground alone) temper it up with *vermilion*; and where it should be brightest, mix *white lead* with the *vermilion*.

For *green sattin* use *verdigrase*, (ground alone) mix it up with *white lead*; and where you would have it brightest, add a little *pink*; and where deepest, a little more *verdegrease*.

For a *yellow sattin* use *masticote*, *yellow oker*, and *umber* (each ground by themselves) and where it should be darkest, use *umber*; where brightest, *masticote* alone; and where a light shadow, *oker*.

For an *orange-colour sattin* use *red-lead* and *lake*; where saddest, use *lake*; and where lightest, *red-lead*.

For *blue sattin* mix *smalt* and *white lead*; heighten for the saddest with *smalt*, and lighten with *white lead*.

For *purple sattin* use *smalt* alone; and where it should be brightest, *white lead*.

For *bare-colour sattin* mix *umber* and *white lead*; and where is the greatest shadow, use *sea-coal black* mix'd with *umber*; and where brightest, more *white lead*.

SATURN was represented by the *Romans* in the form of an old man, holding a scythe or hook in his hand; which some take to represent *Time*, as is also intimated by his name *Xpovès*, *Cronos*.

He was also represented as a very aged man, as one who began with the beginning of the world, holding in his hand a child, which he seems greedily devouring.

*By this is signified the revenge he took for his being expel'd heaven by his own children (according to the mythology of the poets.) Those who escaped his fury, were only four; Jupiter, Juno, Pluto and Neptune: by which are shadow'd forth the four elements, Fire, Air, Earth and Water; which are not perishing by the all-cutting sickle of devouring Time.*

He has also been depicted as an old man, holding in his right hand a serpent, with the end of its tail in its mouth; turning round with a very slow pace: he had also his temples adorn'd

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with a green wreath; and the hair of his head and beard milk-white.

*The wreath on his temples signifies the spring of the year; his milk-white or hoary head and beard, the approach of rigid winter; and the slowness of the serpent's motion, the slow revolution of the planet Saturn.*

He is also describ'd by *Macrobius* with the heads of a lion, a dog and a wolf.

*By the lion's head is signified the time present; (which is always the strongest, for that which is, must needs be more powerful than that which is not:) by the dog's head, the time to come; (which always flatters and fawns upon us, and by whose alluring delights we are drawn on to vain uncertain hopes:) and by the wolf's head, the time past; (which greedily devours whatsoever it finds, leaving no memory thereof behind.*

The same author tells us, that among the rest of his descriptions, he is represented with his feet tied together, with threads of woollen.

*By which is signified, that God does nothing in haste, nor chastises rashly the iniquities of mankind; but proceeds slowly and unwillingly, to give them time and leisure to amend.*

*Eusebius* tells us, that *Astarte* (the daughter of *Cælum*, wife and sister of *Saturn*) did place also upon his head two wings; intimating by the one, the excellency and perfection of the mind; and by the other, the force of sense and understanding.

*The Platonists understand by Saturn the mind, and its inward contemplation of celestial things; and therefore they call'd the time in which he reign'd the golden age, it being replete with quietness, concord and true content.*

The way to make SATURNUS called GLORIFICATUS.

This is a preparation we hold in no less esteem for pastes for gems than that of *Isaac Hollandus*; they have some likeness, yet this last is more easy to make, and has no less virtue.

Take of good *litharge* or rather good ceruse of *Venice*, what quantity you please; that which you chuse, grind into a subtile powder, put it in a great glass cucurbit; whereunto pour good distill'd vinegar, as much as shall swim at the top of the matter, a hand high.

Then put this vessel on a soft ash fire, and when the vinegar is well colour'd and impregnated with salt of *Saturn*, decant it off into another vessel, then continue to put new vinegar on your matter, which stir well with a stick, to facilitate the solution of the salt; and do it so often, that your vinegar shall have extracted all the tincture from the salt, and that colour is no more. Then take all your colour'd vinegar, rectify it four times on tartar calcin'd to whiteness, then filter it carefully,



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fully, and put it in a glass cucurbit on sand or ash fire, where gently evaporate it till it be just skin'd over. Then put the vessel into a cold place, having taken care to cover it, for fear of any foulness tumbling into it, and in a little time you'll find your matter in little stones, pure crystalline and fusible, which you must take out of your vessel full of holes; then put your vessel on the same fire to evaporate the remaining vinegar, till it be just skin'd over; then set it in a cool place to crystallize as before.

When you have taken out all the crystals, dry them well, and reduce them to a subtile powder; and keep them in a vessel well stopp'd, taking care to make at least ten pounds. Thus you have *Saturnus glorificatus*.

*Another way of making paste for precious stones, with  
Saturnus Glorificatus.*

There are some who use transparent flints, calcin'd; to add to *Saturnus glorificatus*, and make paste for artificial gems; but as we esteem natural crystal prepar'd, much more proper for that work, we should employ it before calcin'd flints.

Take therefore of natural crystal prepar'd, ten pounds; of *Saturnus glorificatus*, ten pounds; the whole reduced to fine powder, which mix well together; then put it in a pot in a glass-house furnace, there to be melted and purified three days: then cast it in a great wooden vessel full of cold water, then dry it and put it in the furnace in the same pot, the better to purify. When this crystalline matter is melted, and clear, take it out of the pot; and when it is cool, pound it to an impalpable powder on a marble; then keep it in a glass vessel well stopp'd, for fear of dust falling in; and the matter will serve for a basis or stuff to make all sorts of artificial gems.

S. B. signifies *Stephen della Bella* of *Florence*.

S. B. D. *Pictor*, is set under an Annunciation, invented by *Peter Candido*.

S. C. stands for *Simon Cantarino*, call'd of *Pesaro*, painter and engraver.

The SCABIOUS to paint. There are two sorts of this plant, *Red* and *Purple*.

The leaves of the *red* are to be painted with *Indian-lake* and a little *white*, and colour'd and finish'd with *lake* only, in the middle, where there is a large pod or bud, which contains the seed; but with an addition of a little *ultramarine* or *indigo*, to make it a little darker.

Then make little longish spots of *white* for the upper part, at a pretty good distance from each other; but be sure to make them stronger in the lights, and weaker in the shades.

For the *purple*, cover them with a very pale *purple*; as well



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on the leaves as on the pod in the middle, shading both with the same colour of a deeper tint; and instead of using small *white* strokes for the seed, make them *purple*, and make a round about each, and that all over the pod.

Let the green be *verditer* and *maficote*, shaded with *Iris-green*.

**S** RAPHAEL SCAMINOSSI painter and en-  
**R** graver, us'd this mark.

SCANDAL is represented [in *Painting*, &c.] by an old man with an open mouth, and grey beard, and his hair finely curled; a pack of cards in his right hand, and a lute in the left; a hautboy and musick-book at his feet.

Old age denotes the more heinous offence; open mouth'd, that he occasions *scandal*, not only in deeds, but in words; the cards expos'd to every one's view, is a manifest *scandal*, in an old man especially, who should not give ill examples to youth.

SCARLET, may be represented on a plane with *minium*, a little mix'd with *vermilion*; but if you have occasion to paint a flower of a *scarlet* colour on a print, let your lights, as well as shades, be cover'd thin with *minium*, and the shaded parts glaz'd with *carmine*, which will produce an admirable *scarlet*; such as is seen in the flower *scarlet Martagon*.

Of dying SCARLET, and the BOW-DYE.

1. To dye a Scarlet colour in grain.

Take stale clear wheat-bran liquor, a sufficient quantity; *alum*, three pounds; enter twenty yards of broad cloth, and boil it three hours, cool and wash it; take fair water, a sufficient quantity, *bedder* or *strawel* a fit quantity; let them boil well, cool them with a little water, enter your cloth and make a bright yellow, cool and wash it again; take fresh wheat-bran liquor a sufficient quantity, *madder* four pounds; enter your cloth at a good heat, handle it to a boiling, cool and wash it well; take more fresh bran liquor a sufficient quantity, *cochineal* in fine powder five ounces, *tartar* three ounces; enter your cloth, and boil an hour or more, keeping it under the liquor, then cool and wash it.

1. To dye a bastard Scarlet colour.

Take stale bran liquor twelve days old a sufficient quantity, *alum* three pounds and a half, red *tartar* one pound dissolved, enter twenty yards of broad cloth, boil four hours and handle it well; cool it and let it lye in the *alum* water twenty-four hours, and wash it in fair water, (but some do not;) take fresh bran liquor a sufficient quantity, best *madder* one pound; enter your cloth at a good heat, handle it well to a boiling, keeping  
but

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but a slow fire, cool and wash it well; lastly, take fresh bran liquor a sufficient quantity; enter your cloth again, boil it half an hour, cool and wash it well.

### 3. *Another Scarlet colour in grain from a white colour.*

Take fair water, clear bran liquor, of each equal parts, a sufficient quantity; *alum* nine pound and a half, *tartar* five pounds and a half, melt them; then enter thirty pounds weight of wool, yarn, flannel, or cloth; boil them four hours, take it out and let it cool, and wash it well in fair cold water; then take grains (commonly called *cochineal*) fifteen ounces in fine powder, *tartar* fifteen ounces, fresh bran liquor a sufficient quantity, melt them; enter your cloth, &c. handle it to a good heat, and your cloth being white, it will be of a good *scarlet* colour: let it boil two hours, handle it to a good heat, take it out and wash it.

### 4. *To perform a Bow-dye.*

Take double *aqua-fortis* ten ounces, (some say sixteen ounces) filings of pewter twenty ounces, filings of silver or leaf-silver two ounces; put the pewter into the *aqua-fortis* to dissolve, and after that the silver, dissolving them over a gentle heat; then take *cochineal* in fine powder, cream of *tartar* in fine powder five ounces; mix them with the former things, and add to them white starch forty spoons-full, dissolving and mixing.

Now take the liquor you intend to dye with, and put in a proportionable quantity of the former mixture, (but in a brass vessel lined with pewter or tin,) boil it a quarter of an hour and it is done.

### *To dye cloth, stuff, &c. SCARLET.*

For every twenty pound weight of stuff take one pound and a half of *madder*, three quarters of a pound of *alum*, an ounce and a half of *white-wine tartar*, one ounce and a half of *arsenick*, and an ounce of *ceruse*; boil the cloth in this mixture for an hour and a quarter; then throw away the water, and put fresh water into the kettle, adding a pint of wheaten *bran*; then rinse the stuff in river water, and pass it through the branny water; then take it out and make a liquor of a pound and a half of *verdigrease*, three quarters of an ounce of white wood called *immick*, and rinse the stuff in it several times, having first stirr'd the *immick*-shavings about. Then put into the yellow liquor two pound and a half of *madder*, one ounce of *storax*; let them lie one whole night to dissolve, and after that keep stirring the stuff well about for the space of an hour, keeping constantly a good fire under the copper; all which being done, you will have a very good *scarlet*.

*Another.* For every two pound of stuff to be dy'd allow two ounces of *tartar*, and one ounce of *sal-armoniac*; pul-

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verize them, and when the water begins to boil, put them in, and put two ounces of white starch, and half an ounce of *gummi gutta* into the water; and add also an ounce of *cochineal*; make them boil, and then put in an ounce and a half of *aqua-fortis*. When you have done this, put in the stuff; boil them all together, take it out cool and rinse it.

*Another.* Let the stuffs be *alum'd*, as for crimson in river water; let them be boil'd for two hours, then hang them out a whole night without rinsing; but in the morning rinse them out.

Then in order to dye them, take clean *bran-water*, skim it clean, and for every pound of goods put in an ounce of pulveriz'd *tartar*; having first mixt one half of it with half an ounce of *cochineal*; and when the liquor, where the remaining half of the *tartar* is, hath boil'd, then put in the *cochineal*, &c.

Boil them together, afterwards add half an ounce of *aqua-fortis*, in which a small quantity of *sal-armoniac* (not bigger than a pea) hath been dissolv'd; which must be put in when the stuffs have boil'd about a quarter of an hour; then let them all boil together for a little while, then let it cool and rinse them out.

### *Another good Scarlet.*

Put rain-water into a copper kettle, hang it over the fire, and for every pound of stuff put into a tin pot an ounce and a half of *aqua-fortis*, and an ounce and a half of powder'd *tartar*, and an ounce of *sal-armoniac*; or if you have a little *scarlet* liquor, put in a little *cochineal*.

After you have done this, put them into the water, stir them well together, and put in the stuffs; let them boil for an hour, then take them out, cool and rinse them, and dye them as follows.

For every pound of stuff allow one ounce of *cochineal*, two ounces of *tartar*, a quarter of an ounce of *sal-armoniac*, all reduced to powder; let it boil an hour and a half with the before mention'd ingredients, (prepar'd as before directed) and rain water; rolling the stuff upon the roll as occasion requires: then take it out, cool and rinse it, and it will be a beautiful *scarlet*.

*To dye a SCARLET or NACARET, i. e. a lively red.*

For twenty-seven pound of woollen ware take two pounds of *tartar*, six ounces of *sal-gemmæ*, four ounces of *sal-armoniac*, two pound of *aqua-fortis* temper'd with *tin*, three ounces of *cochineal*; and having first cleans'd the ware very well, when you put these drugs into the kettle, put in the stuff, and let them boil together for half an hour.

*To*

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*To finish it.*

Boil the ware gently with a pound and a quarter of *cochineal*, one ounce of *sal-gemmæ*, one ounce of *tartar*, and half a pound of temper'd *aqua-fortis*; and then rinse it out.

You may (if you please) use more of the *sal-armoniac*, and less of the *sal-gemmæ*: and also if you take but one pound of *cochineal*, and stir the goods well, cool and rinse them, the dye will be very near as good as the other way.

*Another Scarlet dye.*

For one pound of wool take two ounces of *aqua-fortis*, one ounce of *English tin*, two ounces of *white-wine tartar*, an ounce and a half of *alum*, and half a drachm of *cochineal*; and boil the wool with them half an hour, then cool and rinse it out.

*To finish it.*

Take an ounce and a half of *cochineal*; but if you would dye a crimson, add a little *alum*, and a quarter of an ounce or less of *sal-armoniac*.

*Another Scarlet dye.*

For three pound of wool take four ounces of temper'd *aqua-fortis*, four ounces of *tartar*; of *sal-armoniac*, and *sal-gemmæ*, and *cochineal*, each one ounce; boil the wool with these for half an hour, then cool it, and add to the suds an ounce and a half of *alum*, and when it begins to boil, to compleat the work, put in two ounces of *cochineal*.

This dye is deeper and more inclinable to *purple* than the former, and consequently better.

*Another Scarlet.*

For sixty-two pound of ware take two pound of temper'd *aqua-fortis*, two pound of *tartar*, half a pound of *sal-armoniac*, and three ounces of *cochineal*; boil the cloth with these for half an hour, then cool it and put into the suds one pound of *red* or *roach alum*, and also the cloth a second time; boil them three quarters of an hour, and then cool and rinse it.

*To finish it.*

Add two pound of *cochineal*, and boil the stuff with it for a quarter of an hour, and the colour will be extraordinary good.

*A lighter Scarlet.*

For every four pound of ware take *aqua-fortis*, and *white-wine tartar*, of each five ounces, *cochineal* an ounce and a half; boil the goods with these drugs for three quarters of an hour, then take them out, pour fresh water into the kettle, and finish your stuffs as follows.

Take *cochineal* and starch of each three ounces, of crystal *tartar* three ounces, tempered *aqua fortis* two ounces and a half,

## S C H

*gummi gutta* an ounce and a half; boil the water with these drugs for half an hour, and the work will be compleated.

*Note*, That all sorts of wool and woollen wares must be well wetted before they are put into the suds; and this caution is the more especially necessary in the *scarlet* dye.

*To dye a deep Scarlet flesh-colour.*

For thirteen pound of woollen ware take two pound of *aqua-fortis*, tempered with half a pound of *tin*; two pound and a half of *white-wine tartar*, half a pound of *sal gemmæ*, four ounces of *sal armoniac*; boil the ware with all these for half an hour, then rinse it out, and

*To finish it,*

Add one pound and a quarter of *cochineal*, one ounce of *sal armoniac*; boil the goods with these for a quarter of an hour, and they will be of a very good colour.

*Another Scarlet.*

For twenty-six pounds of woollen goods take four pounds of *white-wine tartar*, one pound of *alum*, one pound and a half of *aqua-fortis*, temper'd with six ounces of *English tin*, and two ounces of *cochineal*; boil the goods with these ingredients for an hour, then cool and rinse them.

*To finish them.*

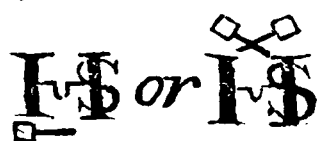
Boil a pound and a quarter of *cochineal* for a quarter of an hour, and afterwards put in the goods and boil them for a quarter of an hour more, and then rinse them out.

You may (if you please) use more *alum* in the preparatory suds, as a pound and a half or two pounds; and you may likewise make an addition of half an ounce of *cochineal*, *i. e.* two ounces and a half, and use but four ounces of *tin*.

*A liquor to scour Scarlet.*

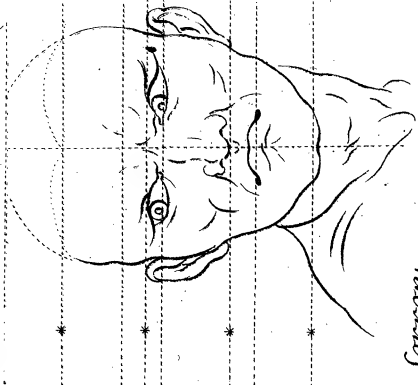
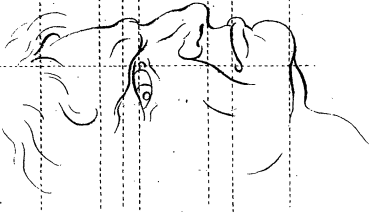
Boil a pound of *wheaten-bran* in as much liquor as is sufficient to work ten or twelve pound of ware; and afterwards add to it, three ounces of *alum*, three ounces of *Florence orris-root* powder'd; boil all together, pour them into a clean vat or cooler, and let them settle till the liquor is clear; afterwards heat the clear liquor in a kettle, and scour the *scarlet* with it, and it will have a very good effect.

S. C. F. stands for *Stephen Carteron fecit.*

 *For*

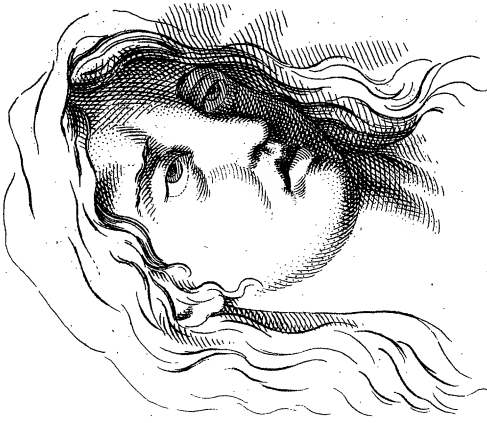
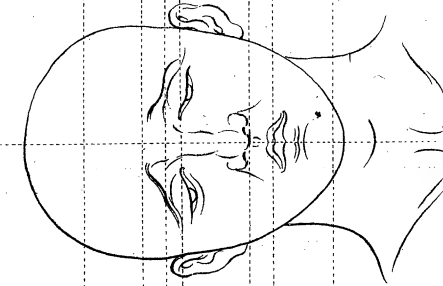
*Hans Schauflig*, that is *John Schauflig* of *Nordlingen* in *Germany*. This mark is found in a folio book; in which the passion, resurrection, and ascension of our Lord are engraven, with notes by *Ulderich Pinder*, printed at *Norimberg* in the year 1507. He engrav'd in the manner of *Albert Durer*.

Scorn

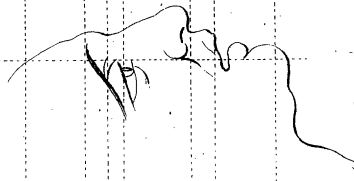


Sorrow

Sorrow

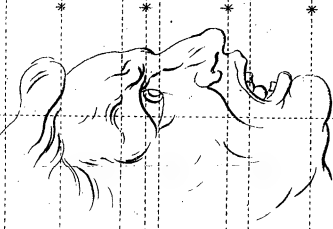
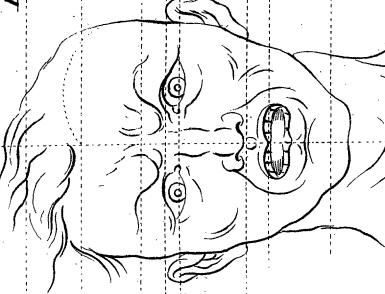


Sorrow



Terror

Terror



Terror







## S. C U

ANDREA SCHIAVONE born in the year 1522, imitated *Parmegiano*, *Georgione*, and *Titian*, liv'd at *Venice*, excell'd in history, died in the year 1682, at 60 years of age.

**G**\* JOHN SCHORELS used this mark under the twelve different labours of *Hercules*.

SCORN, } The motions of *scorn* are lively and strong,  
 AVERSION. } and are represented by a wrinkled forehead; the eye-brow knit or frowning, the side of it next the nose is drawn or sinks down, and the other side is very much rais'd; the eye is very open, and the eye-ball in the middle; the nostrils are drawn upwards towards the eyes, and make wrinkles in the cheeks; the mouth shuts its sides sinking down, and the under lip is push'd out beyond the upper one. *See the plate.*

In *scorn* and *aversion* the body may be drawn retiring backwards; the hands as if they were pushing off the object which causes the *aversion*, or they may be drawn back, as also the feet and legs.

SCOURGE OF GOD is represented [in *Painting*, &c.] by a man in a red garment holding a scourge in one hand, and a thunderbolt in the other; the air being troubled, the earth full of locusts.

His garment denotes wrath and vengeance; the locusts universal chastisement, as in *Egypt*; the thunderbolt signifies the fall of some who ascend to honour by indirect and unjust ways; for it is crooked.

SCRATCH-WORK, the same as *sgraffitti* or *sgrafit*, a certain method of painting in *fresco*, by preparing a black ground, on which was laid a white plaister, which being taken off with an iron bodkin, the black appear'd through the holes, and serv'd for shadows.

This kind of work is lasting; but being very rough, is unpleasant to the sight.

SCRUPULOUSNESS is represented [in *Painting*, &c.] by a lean old man very timorous and shame-fac'd, looks up to heaven, holds a sieve in both hands near a fiery furnace.

Lean because continually tormented with remorse; shame-fac'd because guilty and timorous, as always fearing god's judgments, conscience still flying in his face; the sieve denotes separating good actions from bad, as the furnace tries metals.

SCULPTURE is an art, by which in taking away, or adding to matter, all sorts of figures are form'd; either in *clay*, *wax*, *wood*, *stone*, or *metal*.

This sort of work is done either by *hollowing*, as in metals, *agates*, and other stones; or working in *relievo*, as in *statues* and *bas-reliefs*.

The beginnings of *sculpture* were with *clay*, not only to make statues

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statues at first; but when the sculptor undertook any thing considerable, to make *models*, which was, and is still always done in clay or wax.

*How to make figures of clay or wax.*

There is no need of many tools in this sort of work, the *clay* is plac'd on an easel, and the sculptor begins and finishes the work with his hands.

Those who are us'd to it, never make use of any thing but their fingers, except three or four pieces of wood, which are roundish at one end, at the other flat, with a sort of claws and teeth, call'd by the *French Ebauchoir*, i. e. a sort of hatchet; they are about seven or eight inches in length, those with claws are to smooth the stuff, the others which have teeth are to scratch it, the workmen not affecting to let it appear sleek.

They are made of *wax* thus; take a pound of *wax*, half a pound of *oker* or *scammony*; some mix *turpentine*, and melt it together with oil of olives; put more or less, according as you would have the matter harder or softer; a little *vermilion* also should be mix'd with it, to give it a softer colour.

When the composition is made, the figure is work'd up with the hand, and those *ebauchoirs*, made use of by sculptors in their earthen figures.

Practice is the principal mistress in this sort of work, which at first is not so easy as that in clay.

### Of SCULPTURE in WOOD.

The first thing that a sculptor of wood is to do, is to chuse the best wood he can, and that which is the most proper for the work he undertakes.

If it is something great, requiring strength and solidity, he ought to chuse the hardest wood, and that which keeps best; but for things of moderate bigness, pear or apple-tree will do. And because the latter are also very hard, when the artificers are to make ornaments that should be delicate, they chuse tender wood; but however firm and close, such as the *linden-tree*, which is excellent for that purpose; the chissel cutting it more neatly and easily than any other wood.

As to *statues*, we find the antients made them of all sorts of wood: There was one of *Apollo*, of *box* at *Sicyone*: that of *Diana* at *Ephesus* was of *cedar*.

As these two sorts of wood are very hard and incorruptible, and chiefly *cedar*, which, according to *Pliny*, seems to be design'd never to have an end; the ancients frequently made the images of their gods of it.

In the temple built in honour of *Mercury*, on mount *Cyllene*, there was an image of that god made of *citron* wood, which was very much in esteem; the image was eight foot high.

*Cypress*

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*Cypress* being a tree, which is not apt to corrupt, nor be damag'd by worms, statues were alſo made of it; as alſo of the *palm-tree*, *olive-tree*, and *ebony*, of which there was a figure of *Diana* at *Ephesus*; as alſo of ſeveral other ſorts of wood.

In like manner there were images of *Jupiter*, *Juno*, and *Diana*, made of the vine-tree in other places.

When a figure or piece is well wrought, they ſay 'tis well cut. The beauty of it conſiſts in its being cut tenderly, and when there appears neither dryneſs nor ſtiffneſs in it.

If a ſculptor would undertake any great work, tho' it be but of one figure, he had better make uſe of ſeveral pieces of wood than of one whole piece, which as well in figures as ornaments is apt to *crack* and *cleave*: for an intire piece of wood may not perhaps be dry at heart, tho' the outſide may ſeem very dry.

It ought to have been cut ten years before the ſculptor works upon it in ſuch performances.

A ſculptor in wood uſes ſome of the ſame tools as a Joiner.

Of SCULPTURE in *marble* and other *ſtone*.

*Sculptors*, who work in *marble* or *ſtone*, make uſe of good ſteel tools, ſtrong and well-tempered, according to the hardneſs of the matter.

The firſt thing to be done, is to ſaw out a great block of marble (from another block,) of the bigneſs of the work to be perform'd, which is done with an iron ſaw very ſmooth, and without teeth; and while the marble is ſawing, the ſawyer has water conſtantly dripping on *free-ſtone duſt* into the cleft. The *free-ſtone duſt* ſerves to ſaw the marble, and the water makes it fall off in ſoft mire, when its ſtrength is gone; it alſo hinders the ſaw from heating in the friction.

The block being ſaw'd off, the ſculptor ſmooths the marble he intends to work upon, by taking away its ſuperfluities by main blows, by a *beel* and *point*. When he has ſmooth'd it fit for his work, he goes over it again, with a finer point call'd *dog's-tooth*, having two points, but not ſo ſharp as the other.

After this he makes uſe of his *gradine*, which is a flat cutting tool with three teeth, but not ſo ſtrong as the *point*: with this tool the artificeſ works on to advance his work; he then takes off with a ſmooth chifſel the ſcratches the *gradine* left on the marble, and uſes it with dexterity and delicacy, to give ſoftneſs and tenderneſs to his figure; 'till at laſt taking a *raſp*, which is a ſort of file, his work is in a condition to be poliſh'd.

There are ſeveral ſorts of *raſps*, ſome ſtrait, ſome crooked, ſome harder, ſome ſofter, the one than the other.

When the *ſculptor* has ſo far finiſh'd his *ſculpture*, there being certain places, and particular pieces, which require poliſhing, he uſes *pumice-ſtone* and *putty*, to make all the parts ſmooth and ſleek:

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*beek*: then he goes over it with *Tripoli*; and when he would give it more lustre, rubs it with leather and straw-ashes.

Besides the tools before-mentioned, *sculptors* use the *pick*, which is a sort of *hammer*, pointed and sharp at one end, at the other are teeth made of good steel and squar'd, that they may be the stronger. This serves to break the marble, and is us'd in those cases, where the workman can't make use of both his hands to manage his *mallet* and *chissel*.

The *bouchard* is a piece of iron well-steel'd at the bottom, and pointed at both ends like a diamond, it is us'd to make an hole of equal bigness, which can't be done with cutting-tools.

The *bouchard* is beaten down with the *beetle*, and the points breaking the marble reduce it to powder.

Into the holes water is thrown from time to time, in proportion to the depth that is made, to wash out the dust of the marble, and prevent the iron from heating, which would spoil the temper of the tool; for the *free-stone dust*, on which the tools are edged, is moistened only to prevent their heating, and that they may not lose their temper by being rubbed dry. For which reason they wet also the *trepans*, which otherwise are apt to grow hot in trepanning.

The *sculptors* make use of them to drive into, and to pierce such places of their pieces, as they cannot reach with the *chissel*, without endangering the spoiling of it, and breaking something or other.

When they work with the *bouchard*, they put it through a hole made in a piece of leather, which is put over the place they are hollowing, to prevent the water's spirting up in the workman's face.

The other tools necessary in *sculpture*, are the *roundel*, which is a sort of *chissel* made round; the *houguet*, which is a sort of pointed square *chissel*: besides which, the *sculptors* must have a compass to take all the measures in their figures.

When the *sculptors* undertake any considerable piece of work, whether *statues*, *bas-reliefs*, or the like, they always make a *model* in *clay* of the same bigness they intend the figure should be; and because earth or clay shrinks as it grows dry, and is apt to break, it serves only for a mould of plaister, in which is made figures of plaister also.

This they repair, and afterwards use for a *model*, from which they take all their measures, and govern themselves in cutting the marble.

For the good guidance of their work, they put on the head of this *model* an immoveable circle, divided into degrees, with a *moveable* rule fix'd in the middle of the centre, and divided also

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allo into parts: at the end of the rule hangs a line with a lead by which they take all the points, which are to be the same on the block; a-top of which hangs a line in like manner as in the model.

But there are excellent *sculptors*, who don't approve of this method, saying, if the model stirs never so little, their measures vary, and so they make use of the compasses in measuring all the parts.

As to figures made of hard stones, such as that of *Len*, &c. the artificers do the same as in working in marble, excepting that the matter not being so hard, their tools are not so strong, and some of them are of a different form, as the *rasp*, the *hand-saw*, the *ripe*, the strait *chissel* with three teeth, the *roundel*, and the *grater*.

*Sculptors* have commonly a bowl-dish, in which they temper plaister with the same stone as their figures are made of, and make a powder of it, with which they fill the little holes, and repair the defects they meet with in the stone: that of *Tonnerre* is so plain, that there is no occasion for it.

If they work in *free-stone*, they have tools on purpose, for *free-stone* is apt to scale, and does not work like stone nor marble.

SEBENZANUS *fecit* intends *Martin Rota of Sabina*.

SECRECY is represented [in *Painting*, &c.] by a very grave lady all in black, carrying a ring in her mouth, as if she intended to seal it up.

Grave, because there is no greater sign of lightness than to divulge a friend's secret; in black denotes constancy, never taking any other colour; the ring is the emblem of secrecy and friendship.

SECURITY is represented [in *Painting*, &c.] by a woman in a slumber, leaning one hand upon a spear, and the elbow of the other on a pillow.

The spear denotes pre-eminence and command; the pillar, the confidence, resoluteness, and firmness of a man, when secure from danger; for security is the strength of the mind, that no worldly affair can stagger; it is an immoveable force of mind in managing business; for nothing is able to divert a man from his design, if grounded on reason, who is endued with that quality.

CIVIL SEDITION is represented [in *Painting*, &c.] by a woman with an halbert in one hand, and a branch of ever-green oak in the other, two dogs at her feet, snarling one at another.

The branch signifies, that it being so strong a plant, that it is not easy to be cut to pieces, yet by striking one against another, they are soon broken; so the republick being well-guarded difficultly yields to an enemy, yet clashing one against another by  
*sedition*

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*sedition* soon falls; the two dogs denote *sedition*, that being of the same species, yet quarrel for meat or a salt bitch.

SEPTEMBER is represented [in *Painting*, &c.] in a purple robe, with a chearful countenance, having on his head a coronet of white and purple grapes, holding in his left hand a handful of oats with a *cornucopia* of pomegranates and other summer fruits; and in his right hand a ballance.

### Of LIMNING SERPENTS.

1. Draw the backs of *serpents* with *bice*, and downwards towards the belly with a pale black, the back speckled with black specks.

2. The *adder* with *red-lead*, *vermilion*, and *saffron*, with *blue* on the back; and on the belly below, yellow *masticote* and white, speckled all over with white spots.

3. The *crocodile* with a dark thin *green*, from the back downwards towards the belly, below the belly with *masticote*, so that the yellow and green may enter one into the other, and vanish away into one another: shadow him with *indigo* and *smalt*, and heighten the belly with *masticote* and white: the mouth before and within reddish, the scales black, the claws of a blackish green, the nails wholly black.

4. The *frog* is to be painted with a fair green, speckled with black, and towards the belly with green, mixt with *masticote*, sweetened with green, speckled: the eyes with *saffron*, and black round them; the back heightened with *saffron*.

SERVITUDE is represented [in *Painting*, &c.] by a young girl, her hair dishevelled, in a short white gown, a yoke on her shoulders, a crane by her holding a stone in her foot.

Young, the better to support labour; her hair shews, that those who depend on others, neglect themselves; the yoke, that she ought to bear it patiently; the crane is a symbol of vigilance; the white gown a servant's faithfulness.

SEVERITY is represented [in *Painting*, &c.] by an old matron in a royal habit, with a crown of laurel in one hand; a club, on which is a naked ponyard fix'd; in the other a sceptre, in the posture of commanding; a fierce tyger at her feet.

Her habit shews, that men in dignity are severe; the club, firmness; the ponyard, that *severity* is inflexible, as to inflicting punishment, when reason requires it.

S. F. stands for *Simon Frisius*, *sc.* these are portraits engrav'd by *Henry Hondius*.

SGRAFIT [in *Painting*] a term deriv'd, either from the *Italian Sgraffciata* scratch-work, or the *Greek γράφω*. It is us'd to signify a method of painting with black and white only, not in *fresco*; yet such as will bear the weather. *Sgrafit* is both the design

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design and the painting all in one; 'tis chiefly us'd to embellish the fronts of palaces, and other magnificent buildings.

S. G. S. signifies *Simon Guillin sculptor*. This artist, who was born in *Paris*, engrav'd eighty different figures of *Hannibal Caracci*, anno 1646.

SHADOW is a plan, where the light is weakened by the interposition of some opaque body before the luminary.

SHADOW [in *Opticks*] is a privation of light by the interposition of an opaque body.

But as nothing is seen but by a light, a mere *shadow* is invisible.

When therefore we say, we see a *shadow*, 'tis partly that we see bodies plac'd in the *shadow*, and illuminated by light, reflected from collateral bodies, and partly that we see the confines of light.

If the *opaque body*, that projects the *shadow*, be perpendicular to the *horizon*; and the place it is projected on be horizontal, the *shadow* is call'd a *right shadow*: such are the *shadows* of men, trees, buildings, mountains, &c.

If the *opaque body* be plac'd parallel to the horizon, the *shadow* is call'd a *vers'd shadow*; as the arms of a man stretched out, &c.

*The laws of the projection of SHADOWS from opaque bodies.*

1. Every *opaque body* projects a *shadow* in the same direction with its rays; that is, towards the part opposite to the light. Hence, as either the luminary or the body changes place, the *shadow* likewise changes.

2. Every *opaque body* projects as many *shadows*, as there are luminaries to enlighten it.

3. As the light of the luminary is more intense, the *shadow* is the deeper. Hence the intensity of the *shadow* is measured by the degrees of light, that space is depriv'd of.

4. If a luminous sphere be equal to an *opaque* one it illuminates, the *shadow*, which this latter projects, will be a cylinder, and consequently will be propagated still equal to itself, to whatever distance the luminary is capable of acting; so that if it be cut in any place, the plane of the section will be a circle, equal to a great circle of the *opaque sphere*.

5. If the luminous sphere be greater than the *opaque* one, the *shadow* will be conical. If therefore the *shadow* be cut by a plane, parallel to the base, the plane of the section will be a circle; and that so much the less, as it is a greater distance from the base.

6. If the luminous sphere be less than the *opaque* one, the *shadow* will be a truncated cone; and consequently grows still wider and wider; and therefore if cut by a plane, parallel to the section,



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fection, that plane will be a circle, so much the greater, as 'tis further from the base.

### *The way and manner of SHADOWING.*

1. If it be a surface only, it is best shadowed by drawing lines, either strait or oblique (according as the superficies is) through the better half of it.

2. If it be in a body, it is a double shadow, and is us'd when a superficies begins to forsake your sight, as in columns and pillars, where it is doubly darkened; and represents to the eye, as it were the back side, leaving that unshadowed to the light.

3. The triple shadow is made by crossing over again the double shadow, and is us'd for the inward parts of things, as in clefts of the earth, wells, caves, the insides of pots, cups, and dishes.

4. In *shadowing*, let the *shadow* fall one way, that is on the same side of the body, leaving the other to the light.

*Thus in a man, if you begin to shadow his right cheek, shadow also the right part of his neck, arm, thigh, side, leg, &c.*

5. But, if the light side of the body be darkened, by the opposition of some other body standing between the light and it, it must receive a contrary shadow, according as the light is obfuscated, or rendred dim.

*Thus, if three pillars stand together, that in the middle must receive a shadow on both sides.*

6. All circular bodies must have a circular shadow according to the first section (according to their form or appearance,) and the orbicular shadow of the object, which casteth it.

7. The shadow must be made to grow fainter and fainter, according to the greatness of the distance from the opake body shadowing.

*And the reason is, because all shadows are pyramidal; in which case, space of place prevails with the light against the shadow.*

8. Where contrary shadows concur, let the meanest and most solid body be first serv'd; and in double and triple shadows, let the first lines be very dry, before you cross them, for fear of blotting.

9. All perfect lights receive no shadow at all; but being manifest, are only to be made apparent by that body that receives them, whose shadow must be according to the efflux of light; but the colour of the light ought to agree with the medium, which receives it; whether it be air, crystal, water, amber, glass, transparent wine, or the like.

10. Some artists have us'd a little too much white, yet with a certain kind of grace, altho' their work has been much lighter than the pattern in the lightest part of the body; but then withal, they make the shadow as much too in the obscure parts, where the light fell by reflection, to set forth the decay of light in the  
same

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same part of the body; by this means the work seems to be much rais'd, thereby deceiving the sight.

11. For the light, which comes to the eye in a pyramidal form, comes with a blunter and larger angle, and so represents the object the more evidently; whence comes an admirable *eminence*; the cause of which is, for that there is much more shadow than is necessary in that part, where the light decays most.

12. So that the visual lines failing, that part comes to the eye with a more acute angle, and therefore cannot be seen so perfectly, but seems to fly inwards, and stand farther off.

SHADOW [in *Painting*] is an imitation of a real shadow, effected by gradually heightening and darkening the colours of such figures, as by their dispositions cannot receive any direct rays from the luminary, that is suppos'd to enlighten the piece.

The management of the shadows and lights makes what the painters call the *clair obscure*.

### Of SHADOWING a NAKED BODY.

1. The shadows of the neck in a child or young woman are very fine, rare and hard to be seen; in a man the sinews and veins are express'd by shadowing of the rest of the neck, and leaving them white; the shoulder is shadowed underneath, the brawn of the arm must appear full and white, shadowed on one side.

2. The veins of the back of the hand or knuckles are made with two or three hair strokes, with a fine touch of the pen.

3. The paps of a *man* are shewn by two or three strokes given underneath; in a *woman* by an orbicular shade, somewhat deep; the ribs retain no shadow, except the figure be represented lean.

4. The belly is made imminent by shadowing underneath the breast-bone and the flank: the brawn of the thigh is shadowed by drawing small hair strokes from the hip to the knee, and cross'd again overthwartly.

5. The knee is to be finely shadowed underneath the joint; the shin-bone appears by shadowing one half of the leg with a single shadow.

6. The ankle-bone appears by shadowing a little underneath (as in the knees) and the sinews of it must seem to take beginning from the midst of the foot, and to grow bigger as they approach nearer to the toes.

7. The shadows of the foot must take place according as reason and occasion requires; for which (as also in all the former precepts) the having of good prints will be of no small advantage.

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## *Of the Origin of* SHADOWS.

To define a *natural shadow*, we do not call it an absolute privation of light; for this would be to form a perfect obscurity, wherein objects would be no more seen than their shadows: but we mean by *shadow* a diminution of light, occasioned by the interposition of some opake body, which receiving and intercepting the light that should be cast on the plane, it is placed on, there gives a shadow of its own form.

For light being of a communicative nature, diffuses itself on every thing, not hid from it; particularly on every thing that is plain and smooth: but where there happens the least elevation, a shadow is produc'd, which exhibits the figure of the illumined part on the plan.

The *diversity of luminaries* occasions a difference of shadows; for if the body, that illumines, be larger than the body illumined; the shadow will be less than the body. If they be equal, the shadow will be equal; and if the luminary be less than the object, the shadow will be continually enlarging, as it goes further off.

## *Of the difference of* SHADOWS.

From what has been observ'd before may be drawn this conclusion, that the same object may project shadows of divers forms, tho' still illumined on the same side; the sun giving one form, the torch another, and the day-light no precise form at all.

The sun always makes its shadow equal to the object, that is, projects it parallel wise.

It is certainly of consequence to all painters, engravers, &c. to observe these rules precisely, and not to take the rules for candles, lamps, and the like, in lieu thereof, as is too frequently done.

The shadow of a torch or flambeau is not projected in parallels, but in rays proceeding from a centre, whence the shadow is never equal to the body, but always bigger, and grows bigger as it recedes farther. It appears therefore a gross abuse to represent the shadow of a torch, like that of the sun; and the shadow of the sun like that of a candle, when the difference is so considerable.

There is a *third kind of shadow*, neither produc'd by the *sun* nor a *torch*; but only a fine sunny day, which wanting strength to finish, and define its form, occasions a dimness near the object. Now for this there is no certain rule, but every body conducts it at discretion.

All these shadows both of the sun, of the torch, and of the *day-light* must appear darker than the parts of objects not illumined; and that part of the shadow, that is most remote from the object, must be still darker than that nearer it.

To

## S H A

### *To find the form of the SHADOWS.*

Tho' perspective is defin'd to be the representing objects, which are on the ground, or a horizontal plane, upon a plane perpendicular to the horizon; yet in the business of shadows it is quite the reverse, since we there conceive a body rais'd over the plan, which being illumin'd, casts its own shadow on the plan.

To find a shadow, two things are propos'd, *viz. light and a body*. Light, tho' quite contrary to shadow, is yet what gives it its being; as the body or object is what gives its forms or figure.

To conceive the nature of shadows more clearly, and render the practice more easy, it must be observ'd, that there are two points to be made use of; one of them the foot of the light, which is always taken on the plan the object is placed upon, the other the luminous body; the rule being common to the sun, torch, &c. with this difference, that the sun's shadow is projected in parallels, and that of the torch in rays from the same centre.

### *Of SHADOWS from the sun.*

The sun being vastly larger than the whole globe of the earth, must give all its shadows pointed; by reason it illumines more than half of them.

In consequence of this demonstration, we might conclude, that all the sun's shadows must be less than the bodies that project them, and diminished more and more, as they recede further and further.

Now this would be true were there any relation between the body illuminated, and the body illumining; but as all objects on the earth are so small in comparison of that star, the diminution of their shadows is imperceptible to the eye, which sees them always equal; *i. e.* either broader or narrower than the body that forms them: on this account all the shadows caus'd by the sun are made in parallels.

From the whole it appears, that to find the shadow of any body whatever oppos'd to the sun, a line must be drawn from the top of the luminary perpendicular to the place where the foot of the luminary is to be taken; and through this place an occult line to be drawn through one of the angles of the plan of the object, and another from the sun to the same angle; and the intersection of the two lines will shew how far the shadow is to go: all the other lines must be drawn parallel hereto.

*The SHADOWS of the Sun are equal in objects of the same height, tho' at a distance from each other.* See Plate, fig. 1.

Experience teaches that several stiles or elevations of the same height, remov'd to a distance from each other, do yet project  
Y 2 equal

## S H A

equal shadows at the same time: I say, at the same time, for they are lengthening and shortening, in proportion as the sun comes nearer, or recedes further off; one or other of which he is continually doing.

For this reason, when the shadow of an object is to be cast any way, you must determine the place of the sun, and the point underneath, to draw two occult lines from the same, for the extremity of the shadow; as here the palisade A gives the extreme of its shadow in B; and if from this point B you draw a line to the point of sight C, this line B C will be the shadow of the palisade D, as well as that of A, and of all the rest in the same line to the very point of sight.

In effect, it must be held for a certain maxim, that shadows always retain the same point of sight as the objects.

On the footing of this observation, that objects of the same height give equal shadows; if you would give the shadow of the palisades E F, which are of the same height as A D; take in your compasses the distance A D, and set it on the foot of the palisade E, by which you will have E G; then from G draw a line to the point of sight C, and thus you are to proceed, tho' the walks were infinite.

Tho' the sun is made to appear in the first figure, it must not be imagined that he is so near the objects. My intention was to shew, that the rays proceed from him, when at such a height, tho' far without the limits of the piece.

As in this second figure, which yet has the line, for the foot of the sun A B, and that of the rays of the sun C; by reason that those are always required for finding the extremities of the shadows. *See fig. 2.*

The shadow of the object O is found by continuing the line A B, and making it rise over the steps, and against the wall, 'till cut by the ray in the point S, by the rays passing over the corner of the object, and from S drawing a line to the point of sight T.

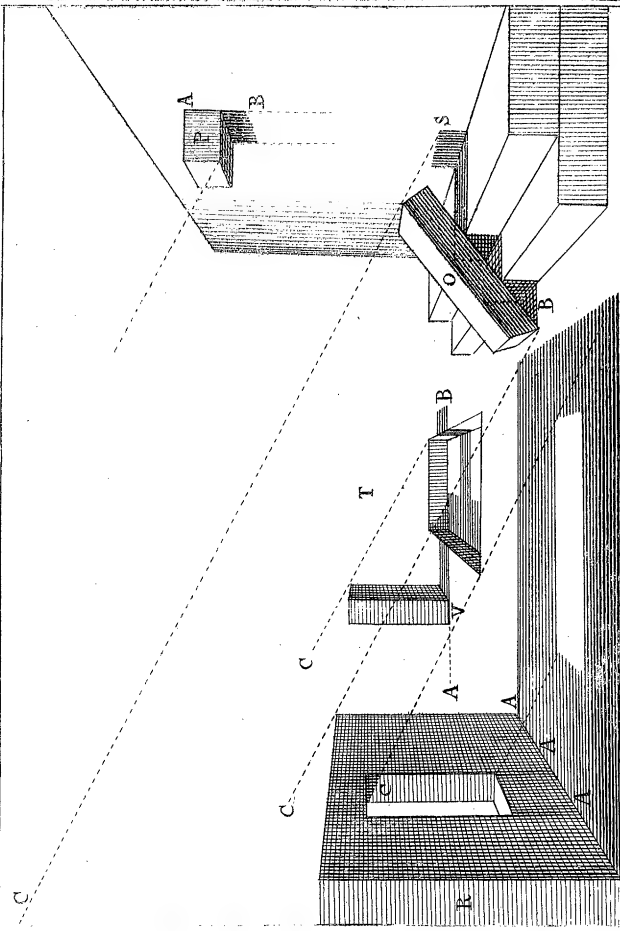
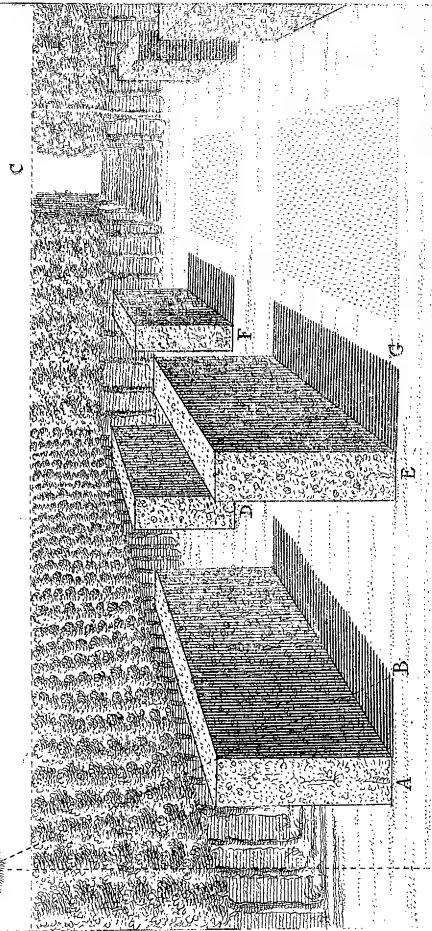
To find the shadow of the object P, it must be remembered that the foot of the light must always be suppos'd on the plan, where the object is plac'd. Accordingly the ray C cutting the little line A B, shews how far the shadow of the little object P must go, to be thence drawn to the point of sight T.

The object V casts its shadow all along; tho' in its way it descends into a ditch.

The shadow of the wall R is found by the same rule as the rest; as appears from the lines A B, and the ray C.

### SHADOWS *on several parallel planes.*

The first plane here is the floor, whereon the chair A stands;  
the







## S H A

the second plane is the upper part of the table, parallel to the first, and may be either above or below it.

There might also be more of these planes, wherein to find the foot of the illuminating body, in order to come at the shadow of the object.

Suppose the foot of the illuminating body to be C, and the flame B, from these points C and B draw lines, through the upper and under part of the object D, which will give the shadow E upon the table.

To find the shadow of the chair A, which is plac'd on the ground, determine the foot of the luminary on the table in C on the ground; this is clear'd by the following instructions.

From the point of distance, which is here suppos'd to be without the limits of the paper, draw a line through the foot of the table F; then from the angle G upon the table let fall a perpendicular, cutting the line F in the point H, and from H draw a parallel to the base H I, which is equal to the upper part of the table, and will direct to the thing requir'd.

For drawing a line from the point of sight K, thro' the foot of the luminary C, to the extremity of the table L; from the same point L, let fall a perpendicular to H I, which will give the point M.

Then from M draw a line to the point of sight K; in which line M K will the foot of the luminary be found.

To determine the precise point, let fall a perpendicular from the point C, which cutting the line M K, will give the point N for the foot of the luminary.

This point N being thus found, there will be no difficulty in finding the shadow of the chair A; the method being the same as for the other objects taught before, that is, from the foot of the luminary N draw lines through all the angles of the plan of the chair, and other lines through the upper part of the chair from the luminary B; these latter, by intersecting the former, express the bounds of the shadow. For the rest, the figure gives sufficient directions.

### *The SHADOW of an erect and inverted PYRAMID by Torch-light.*

The shadow of an erect pyramid by torch-light falls, as it would by the light of the sun; and in both cases there is but one line, whereon the vertical point of the pyramid will be found.

Upon the planes B C D E draw the diagonals E B and D C; through the central point F, raise the perpendicular F A; and from the four points B C D E, draw lines to the point A, and the pyramid will be erected.

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Then to find its shadow, draw an indefinite line from the basis **G** of the illuminating body, passing through **F**; and from the central flame of the torch **H**, draw another line over the vertex of the pyramid in the line **G F**, 'till it cut the point **I**, which point will limit the shadow of the pyramid.

Lastly, draw a line from **C** to **I**, and another from **E** to **I**, and the triangle **C I E** will be the shadow of the pyramid.

To gain the shadow of an inverted pyramid, draw perpendicular lines from the angular points of its base, and form the subjacent plane, by means thereof, after the manner directed for the sun.

And from all the angles of this plane, draw lines to the base of the torch **G**; then from **H**, the central point of the flame, draw other lines touching all the angles of the base of the inverted pyramid, and dividing those of the plane, whereby the shadow will be defined.

### *The different dispositions and heights of SHADOWS by torch-light.*

Shadows from the sun are all cast the same way, and have the same disposition; it being impossible, that the sun should occasion one shadow to tend towards the east, and another towards the west, at the same time.

It is true, in different times of the day, it makes this difference: but never in one and the same hour.

But the torch, candle, and lamp, have always this effect; for in what place soever one of these luminaries be found, provided there be a number of objects about them, the shadows will be cast various ways; some to the east, some to the west, some to the north, and others to the south, according to the situation of the objects around the luminary: the foot of which here represented by **A**, serves as a common centre, from which they all proceed: and the flame here represented by **B**, shews where they are to terminate, tho' at different distances; as the nearest produce the shortest shadows, and the remotest the longest. See Plate, fig. 1.

### *The SHADOW doubled.*

When two luminaries shine on the same object, two shadows must be produc'd, each of the luminaries occasioning its respective shadow, and that in proportion to the circumstances of the luminary.

If such luminaries, when at equal distances, be equal, the shadows themselves must be equal: but if there be any disproportion, that is, if one of them be a little bigger than the other,

Fig. 2

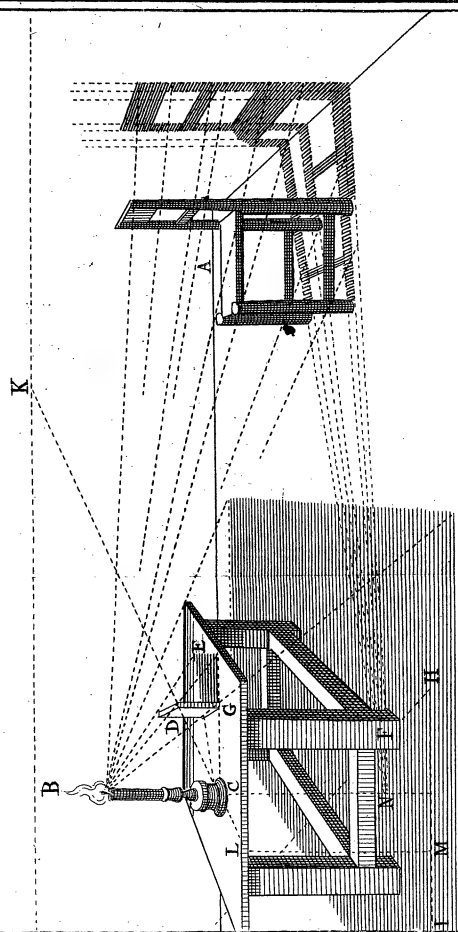
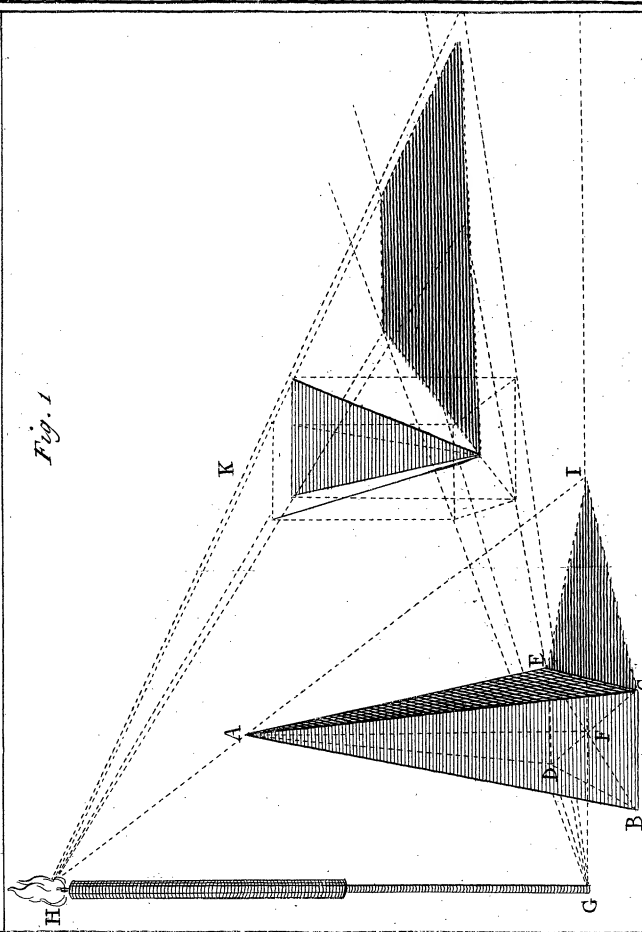
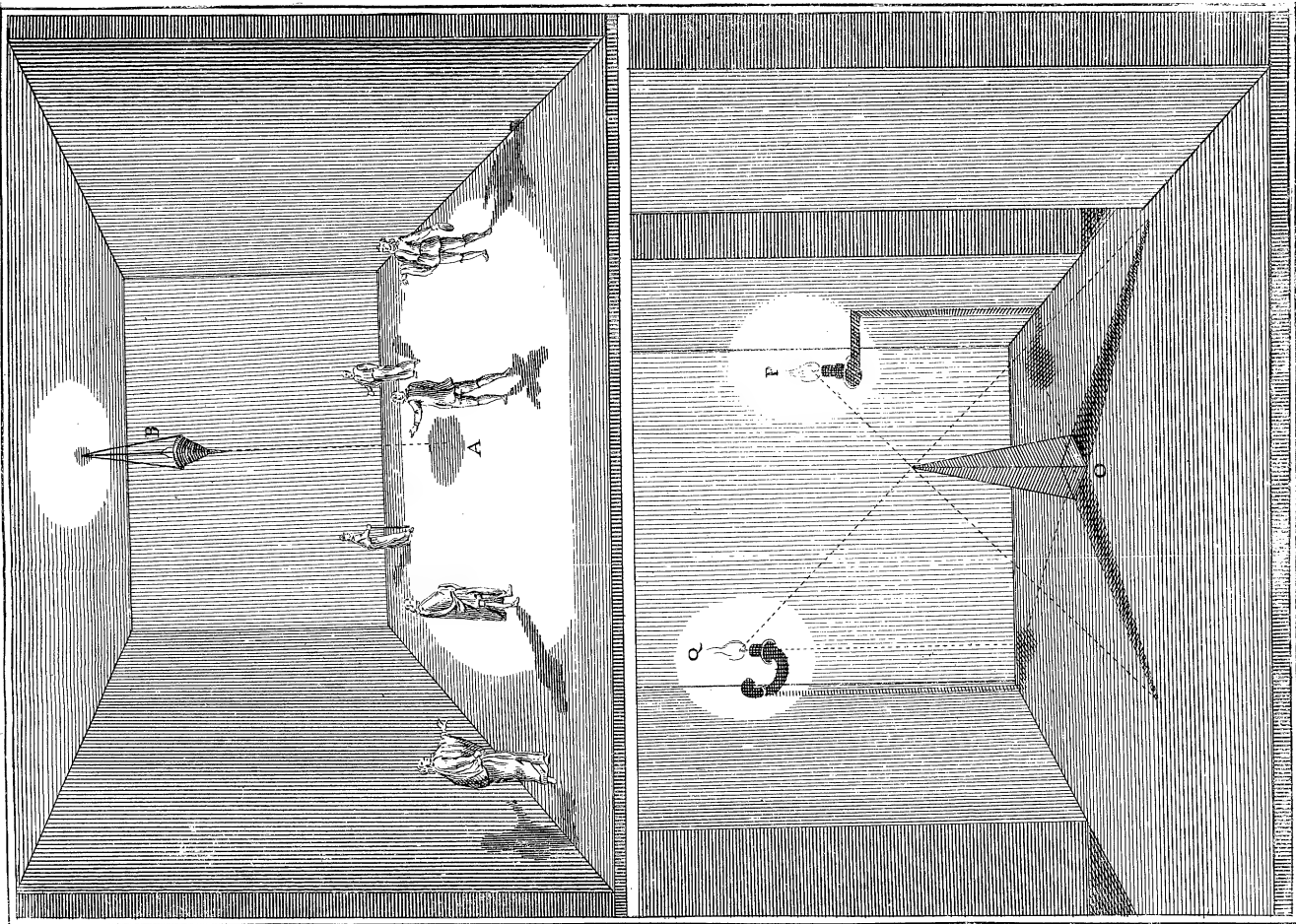


Fig. 1









## S H A

other, or one of them a little nearer the object than the other, the shadows will be unequal.

Thus the object O being illuminated by two candles, the one near at hand in P, the other farther off in Q, it is evident the shadow of the candle P will be deeper than that of the candle Q, as is express'd in the figure. *See Plate, fig. 2.*

The rules for such shadows are the same with those already given, both for the sun and the torch.

*The reason why SHADOWS fall all one way.*

First, because the light does not with all its brightness illuminate any more than that part, that is directly opposite to it.

Secondly, It proceeds from the nature of the eye; for the first part of the body coming to the eye with a bigger angle, is seen more distinctly; but the second part being further off, is seen by the eye in a lesser angle.

And if you are to draw two or three men standing together, one behind another, tho' all of them receive equally the light, yet the second being further from the eye, must be shadowed darker, and the third more dark than the second.

It is a general observation, that if you draw many figures together in one room, they must all be shadowed on the contrary side from the light, whether it comes in at the middle or end, or any where else.

Again, that part of the body must be made lightest, which hath the light most directly opposite to it; as if the light be placed above the head descending, then the top of the head must be made the lightest, the shoulder next lightest, and so you must lose by degrees.

That part of the body, that stands farthest out, must be made lightest, because it comes nearest to the *light*, and the *light* loses so much of its brightness, by how much any part of the body bends inward; because those parts, that stick out, do hinder the lustre of the full brightness of the light from those parts, that fall any thing more inward; therefore by how much one part of the body sticks out beyond the other, it must be made so much lighter than the other; or if it fall more inward, then it must be made more dark.

As for sattins and silks, and all other shining stuffs, they have certain bright reflections, exceeding bright, with sudden light glances; especially where the light falls the brightest; and so the reflections are less bright, by how much the garment falls more inward from the light.

The like is seen in armour, and brass pots and kettles, or any glittering metals: you may see a sudden brightness in the middle or centre of the light, which causes the shining nature of such things.



## S H A

SHAMMY } Leather, popularly call'd *shammy*; a kind of  
CHAMOIS } leather, either dressed in oil, or tanned, much  
esteemed for its softness, pliancy, &c.

It is prepared from the skin of the *chamois*, a kind of wild goat call'd also *Isard*, inhabiting the mountains of *Dauphine*, *Savoy*, *Piedmont*, and the *Pyreneans*.

Besides the softness and warmth of the leather, it has the faculty of bearing soap without damage, which renders it very useful on many accounts.

In *France*, &c. some wear the skin crude without any preparation; it is also used for the purifying *mercury*, which is done by passing it through the pores of this skin, which are very close. See MERCURY.

The true *chamoise* leather is counterfeited with common goat, kid, and even sheep skin; the practice of which makes a particular profession called by the *French Chamoiseur*. The last is the least esteemed, yet so popular, and such vast quantities prepared, especially about *Orleans*, *Marseilles*, and *Tholouse*, that it may not be amiss to give the method of preparation.

*The manner of chamoising, or of preparing sheep, goat, or kid skins in oil, in imitation of Chamois.*

The skins being washed, drained, and smeared over with quick lime on the fleshy side, are folded in two length-wise, the wool outwards, and laid on heaps, and so left to ferment eight days; or if they had been left to dry after fleaing, for fifteen days.

Then they are washed out, drained, and half-dried, laid on a wooden leg or horse, the wool stripp'd off with a round staff for the purpose, and laid in a weak pit, the lime whereof had been used before, and had lost the greatest part of its force.

After twenty-four hours they are taken out, and left to drain twenty-four more; then put in another strong pit. This done, they are taken out, drain'd, and put in again by turns; which begins to dispose them to take oil: and this practice they continue for six weeks in summer, or three months in winter; at the end whereof they are wash'd out, laid on the wooden leg, and the surface of the skin on the wool side peel'd off, to render them the softer; then, made into parcels, steep'd a night in the river, in winter more; stretch'd six or seven over one another, on the wooden leg; and the knife pass'd strongly on the flesh side, to take off any thing superfluous, and render the skin smooth.

Then they are stretch'd as before, in the river, and the same operation repeated on the wool side; then thrown into a tub of water with bran in it, which is brew'd among the skins 'till the greatest part stick to them; and then separated into distinct tubs 'till they swell, and rise of themselves above the water.

By

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By this means, the remains of the lime are cleared out : they are then wrung out, hung up to dry on ropes, and sent to the mill, with the quantity of oil necessary to full them : the best oil is that of stock-fish.

Here, they are first thrown in bundles into the river for twelve hours, then laid in the mill-trough, and full'd without oil 'till they be well softened ; then oil'd with the hand, one by one, and thus form'd into parcels of four skins each, which are mill'd and dry'd on cords a second time, then a third ; then oil'd again and dry'd.

This process is repeated as often as necessity requires : when done, if there be any moisture remaining, they are dry'd in a stove, and made up into parcels, wrapp'd up in wool ; after some time they are open'd to the air, but wrapp'd up again as before, 'till such time as the oil seems to have lost all its force, which it ordinarily does in twenty-four hours.

The skins are then return'd from the mill to the *chamoiser* to be scour'd ; which is done by putting them into a lixivium of wood-ashes, working and beating them in it with poles, and leaving them to steep till the lye have had its effect ; then wrung out, steep'd in another lixivium, wrung again, and this repeated till all the grease and oil be purg'd out. They are then half dry'd, and pass'd over a sharp-edg'd iron instrument, plac'd perpendicular in a block, which opens, softens, and makes them gentle : lastly, they are thoroughly dry'd, and pass'd over the same instrument again, which finishes the preparation, and leaves them in form of *chamois*.

*Kid* and *Goat*-skins are *chamois'd* in the same manner as those of *Sheep* ; excepting that the hair is taken off, without the use of any *lime* ; and that when brought from the mill, they undergo a particular preparation call'd *ramalling*, the most delicate and difficult of all the others.

It consists in this, that as soon as brought from the mill, they are steep'd in a fit lixivium ; taken out, stretch'd on a round wooden leg, and the hair scrap'd off with the knife ; this makes them smooth, and in working, cast a kind of fine nap. The difficulty is in scraping them evenly.

SIBYLS are, according to some, in number twelve ; but *Martianus* will have but two, *Pliny* and *Solinus* but three, and *Salmasius* but the first seven : but *Varro* allows ten.

They are generally represented as young women ; yet some of them were old, as she which sold the books to *Tarquin*.

These *Sibyls* were in high esteem (by some persons) on account of their prophecies of *Christ*.

SIBYLLA AGRIPPINA is represented [*in Painting, &c.*] as a woman in years in a rose-colour'd garment. She is call'd  
by

## S I B

by divers authors *Ægyptica*. *Suidas* relates that she prophesied in *Egypt* in the days of *Pharaoh*.

Her prophesy imported, that *hands should be laid on the invisible world; his beauty shall not appear, his mother's womb shall inclose him, and he (who is eternal joy) shall weep.*

SIBYLLA LYBICA was born in *Lybia* (otherwise call'd *Elissa*) and was contemporary with *Euripides*. *Lactantius* allows her the second place among the *Sibyls* for her admirable predictions, viz. *the time draws on, and is not far off, when the God of light shall be environ'd with the radiant beams of the Sun.* She is represented [in *Painting*, &c.] as an elderly woman in purple garments, crown'd with a garland of flowers.

SIBYLLA DELPHICA was so call'd from her being born at *Delphos*. She liv'd before the siege of *Troy*, and foretold the manner of that war; and prophesied of *Christ* as follows, *Know him for thy Lord, who is the son of God; a prophet shall be born of a pure virgin without the seed of man.* She is represented [in *Painting*, &c.] as a young woman clothed in a black garment, holding in her hand a horn.

SIBYLLA PHRYGIA is represented [in *Painting*, &c.] as having an old *Saturnian*, hard-favour'd face, clad in red garments; many suppose her to be *Cassandra*. She prophesied very divinely of the day of Judgment as follows, *A trumpet (said she) from heaven shall give a very terrible and dreadful sound; all Kings shall stand before the judgment-seat of God, who will at once judge both the just and unjust.*

SIBYLLA HEROPHILA is represented [in *Painting*, &c.] as a young woman very fair, clad in a purple garment, and having her head cover'd with a veil of *lawn*: she is also call'd *Eritbrea*, and as *Apollodorus Eritbreus* writes, was a citizen of *Eritbrea* in *Ionia*. She prophesied to the *Greeks* that they should overcome *Troy*; and also of *Christ* as followeth, *The earth shall sweat as a token of judgment; a King shall come from heaven, whose kingdom shall be everlasting.*

SIBYLLA EUROPEA is said to have been born in *Jerusalem*; but the place of her birth is not certainly known. She prophesied thus, *The almighty shall come accompany'd with his legions of Angels, he shall walk over the hills and clouds, he shall live poorly and in silence, he shall bear rule.* She is represented [in *Painting*, &c.] as a comely young woman, having a high red-colour'd face, clad in a garment of cloth of gold, and a fine veil on her head.

SIBYLLA PERSICA liv'd in the hundred and twentieth *Olympiad*, and was born in a town call'd *Noe* by the *Red-sea*. She prophesied as follows, *O death, thou shalt be trodden under feet: the son of God shall be born into the world, and he shall bring*

## S I B

*bring to men salvation; the invisible world shall be made visible.* She is represented [in *Painting*, &c.] as a young woman in a white veil and golden garment.

SIBYLLA SAMIA was born at *Pluten* in the Isle of *Samos* in the *Ægean* sea, before the birth of *Christ*. She is represented [in *Painting*, &c.] as a woman of a middle age, cloth'd in willow weeds, and holding a palm in her hand. She prophesied six hundred and sixty-five years before the birth of *Christ*, and yet prophesied as if she had liv'd in his days as follows; *O ill-advis'd and indiscreet people of Judea, who did not turn to the Lord your God; you have not truly known him, but have crown'd him with thorns, and have given him gall to drink.*

SIBYLLA HELLESPONTICA was born in the territories of *Troy*, in a place call'd *Marmissa*, near the town of *Gergitha*. She is represented [in *Painting*, &c.] as a young woman of a round, lovely, fresh-colour'd face, cloth'd in green garments, holding in her right hand a pen, and in her left hand a book. *Heraclitus Ponticus* says, that she was cotemporary with *Solon*, in the reign of *Cyrus*, about the sixtieth *Olympiad*. She prophesied as follows, *Be comforted, O ye nations, call upon your God, your iniquities shall be forgiven, and you shall find mercy at the hands of the Lord.*


SIBYLLA TIBURTINA was born in *Italy* in a town near *Rome*, upon the bank of the river *Tibur*, from whence she took her name. She was represented [in *Painting*, &c.] as an old woman of a hard visage, cloth'd in a purple garment, and having in her apron the books of the *Sibyls*. She prophesied as follows; *A branch shall bud from a sweet root, a flower shall spring from thence, and the spirit of the Lord shall rest upon it.*

SIBYLLA EPIROTICA; she is also call'd *Cimmeria*; she was said to be born near the *Bosphorus*; but others say in *Cimmeria*, a town in *Campania* in *Italy*. She is represented [in *Painting*, &c.] as an old woman of a hard-favour'd face in a grotto, cloth'd in garments of purple and dark colours. She is said to have prophesied a-while after the destruction of *Troy*, as follows; *A virgin shall bring forth a son without the help of a man, and nourish him with the milk of her breasts.*

SIBYLLA CUMANA was born in *Cuma* a town of *Campania* in *Italy*. She liv'd in the fifty-fifth *Olympiad*, in the times of *Numa Pompilius* and *Tarquinius Superbus*. She was represented [in *Painting*, &c.] like a grave matron cover'd with a veil, and cloth'd in robes of a blue colour, hiding her feet. She prophesied as follows, *After three days he shall triumph over death, return to the light, and be the first who shall give evidence to the resurrection, thereby to strengthen the faithful in the hope of eternal life.*

COR-

## S I L

 CORNELIUS SICHEN used these two marks in one hundred and eight plates of the *Old Testament* in 1569.

LUCA SIGNORELLI DA CORTONA born in the year 1439, scholar of *Pietro del Borgo*, liv'd at several places in *Italy*, excell'd in history-painting, died in the year 1521, aged 82 years.

### *To prepare raw SILK for dying.*

First put the *silk* into a bag, or make it up so as to prevent it from being tangled; and for every pound of *silk* allow one quarter of a pound of soap; boil them together for the space of two hours, and afterwards cleanse it very well, and this being done, it being also alum'd, it will be fit for dying any colour.

### *Another way.*

Take for every pound of raw *silk* a quarter of a pound of green or black *soap*, smear the *silk* very well, and thoroughly with the *soap*; then put it up in a linnen bag, and boil it for six hours.

Then take out the bag, and let the *silk* cool, that you may handle it the better; then rinse it in a river or running water for a quarter of an hour. Beat the water out and rinse it well; then dry it, and it is ready for dying.

This preparation is absolutely necessary for all raw *silks* before they can be dyed.

### *How to alum the boiled SILK.*

For every pound of *silk* melt a quarter of a pound of *alum* in a kettle or skillet, and then throw it into a tub of water; then put in the *silk*, and let it lie in steep all night.

You must carefully observe the proportion of *alum* directed before, for the quantity of *silk*.

### *To make or dye SILK a SILVER-colour.*

The *silk* having been first boiled and rinsed, and taken off the sticks, put it into a vessel of cold water; then put in a little of the former rinsing water, and a few *galls*, in proportion to the quantity of *silk*; which you must stir about in the liquor, till it is brown, and then rinse and dry it.

### *To dye SILK a SILVER-GREEN.*

For every pound of *silk* put twelve ounces of *galls* in fair water, let them boil for two hours; then pour them into another vessel, and stir the *silks* about in it for a quarter of an hour; then let the *silk* lie and soak in it one night, and in the morning wring it out, rinse and beat it, and hang it out upon poles; then make another tub of liquor with a sufficient quantity of *Provence-wood*, suds and cold water; stir the *silks* therein, for a quarter of an hour, then brown them with *vitriol*, *madder* or *copperas*, and wring them out and dry them.

## S I L

*To recover the colour of black SILK or CLOTH.*

Boil the leaves of a forward summer *fig-tree* in rain or river-water, till a third part of the water is consum'd; wash the *silk* or *cloth* in this water, and then rinse it or brush it over with a little *alum*-water, and it will be restor'd to a curious fair black.

*To gild SILK and LINNEN.*

Lay parchment glue on the *silk* or *linnen*, &c. do this gently that it may not sink in; then take *ceruse*, *bale* and *verdigrease*, of each a like quantity, mix and grind them upon a stone; then having mixt a little varnish with it in a glaz'd earthen vessel, let it simmer over a gentle fire, and keep it for use.

*Another of a pure gold colour.*

Take the juice of fresh *saffron*, or for want of it ground *saffron*, and the best clear *orpiment*, of each a like quantity; grind them with *goat's-gall* or *gall* of a *pike* (which is better,) digest twenty-eight days in horse-dung, and it is done.

*How to stiffen CAFFA and the like sorts of SILK, and give them a beautiful lustre.*

Pound an ounce of *gum arabick*, and half an ounce of *gum tragacanth*, very well in a mortar; dissolve them in water; then boil two pound of *linseed* in water so long till it becomes glutinous, then put in the *gum*-water, make it hot and strain it through a cloth, and with a sponge smear it on the wrong side of the *silk*, taking care that the piece of *silk* be stretch'd both in length and breadth, otherwise it will be apt to rumple.

*To scent or perfume SILKS.*

After the *silk* has been dyed, for every pound of *silk* take an ounce of *orris*, dry it well. Lay the *silks* in *rose*-water in a thick sieve, and betwixt every row strew powder of *orris*, and shut it up close in a box or chest, till the next day, and the *silk* will emit an agreeable odour.

*How to keep SILK from staining in the washing.*

Heat rain-water very hot, then put into it *Castile*-soap, dissolve it well; then let it stand till it is almost cold, and then sprinkle in a small quantity of *fuller's-earth*, then scour out the *silks*; when you have done, clap them between dry cloths, (not suffering them to lie on heaps,) and they will look fresh and fair.

*To restore SILKS of any colour that have been soiled or greased.*

Take an ounce of unslak'd lime, and the like quantity of the ashes of vine-branches, and as much oak-bark; mix them well together in fair water, and make with them a kind of *lye* over a gentle fire; let this settle, then take the clear part, and rub over the faded part with a brush or sponge, and it will in a short time restore it.

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*How to make a soap to take grease, spots, or stains out of  
SILKS, STUFFS, CLOTH, &c.*

Take *rock-alum*, burn it well and reduce it to a fine powder, and add to it the powder of the roots of *Florence-flame* (a herb so call'd) about half a pound; and to these add a new-laid egg, and two pound and a half of cake-soap; make them up with fair water into round balls; and when you would take out any spot or stain, first wash the place well with warm water, and then lay a laying of this soap upon it for three or four hours, and then wash it off with other warm water, and in often so doing they will disappear.

*Another excellent and approved way.*

Distil *wood-sorrel* in an *alembick* with fumitory, and wash the damag'd place therewith, and in frequently so doing it will restore it.

*To take spots and stains out of very thin SILK.*

Warm a pint of white-wine vinegar indifferent warm, then dip a black cloth into it, and then rub over the stains; afterwards scrape *fuller's-earth* over them, and clap dry woollen cloths under and over, placing an *iron* indifferently hot on the upper, and it will draw out the spot, &c.

*To take spots or stains out of SILKS.*

Bruise an ounce of *flax-seeds* in two or three spoons-ful of the juice of *lemon*, and add a quarter of an ounce of white *lead*, and the same quantity of burnt bone; mix them over a gentle fire to a thickness, and lay them on the strainer.

SILK, a very soft, fine, bright, delicate thread; the work of an insect, call'd a *filk-worm*. The antients were but very little acquainted with the use and manufacture of *filk*. They took it for the work of a kind of spider, or beetle, who spun it out of its entrails, and wound it with its feet about the little branches of trees. This insect they call'd *Ser*, from *Seres* a people in *Scythia*, who kept it; whence, the *filk* itself the *Latins* named *Sericum*. But the *Ser* has very little affinity with our *filk-worm*, *bombyx*; the former living five years; but the latter dying yearly, envelop'd in a yellowish cover, or ball, which being wound out into little threads, makes what is call'd *filk*. The art of manufacturing *filk* was first invented in the isle of *Cos*; *filk* was brought to the *Romans* from *Seres*, where the worm was a native.

This occasion'd *filk* to be a very scarce commodity among them for several ages; 'twas even sold weight for weight with gold; insomuch, that as *Vopiscus* informs us, the emperor *Aurelian* refus'd the empress his consort a suit of *filk*, (which she earnestly solicited him for) merely on account of its dearness. At length two Monks, coming from the *Indies* to *Constantinople* in the year 555, brought with them large quantities of *filk-worms*,  
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with instructions for the hatching of their eggs; also rearing and feeding the worms, drawing out the *silk*, and spinning and working it. Upon which, manufactures were set up at *Athens*, *Thebes*, and *Corinth*.

About the year 1130, a *silk* manufacture at *Palermo* was establish'd by *Roger* King of *Sicily*, as also another in *Calabria*, manag'd by artificers, who were part of the plunder brought from *Athens*, *Corinth*, &c. whereof that prince made a conquest in his expedition to the *Holy-Land*. And by degrees, (*Mezeray* adds) the rest of *Italy* and *Spain* learn'd from the *Calabrians* and *Sicilians*, the ordering of the *silk* worms, and working of the *silk*: and afterwards the *French*, by right of neighbourhood, a little before the reign of *Francis* I. began to imitate them. The great advantage this new manufacture turn'd to, made our K. *James* I. to be very earnest for its being introduced into *England*. Accordingly it was several times recommended from the throne, in the most earnest terms, to plant mulberry-trees, &c. for the propagation of *silk* worms; but, unhappily, without effect: tho' from the various experiments, that are found in the *Philosophical Transactions*, and other places, it appears, that the *silk*-worm thrives, and works as well, in every respect in *England*, as in any other part of *Europe*.

The *silk*-worm is an insect remarkable, both for the precious matter it furnishes for divers stuffs, and also on account of the various forms it assumes, before as well as after its being envelop'd in the rich cod or ball it weaves itself. From a grain, or seed, (which is its first state) it becomes a pretty large worm, of a whitish colour, inclining to a yellow. When a worm, it shuts itself up in its cod, and assumes the shape of a sort of greenish bean, without any signs of life or motion. At length it awakes and becomes a butterfly, after making itself a passage out of its *silk*-sepulchre: and at last dying indeed, it prepares itself by a grain or seed it casts, for a new life, which the warmth of the summer assists it in resuming.

As soon as it is arrived at the size and strength necessary for the beginning its cod, it makes its web; this is his first day's employment: on the second he forms his cod, and covers himself almost over with *silk*: the third day he is quite hid; and the following days employs himself in thickening and strengthening his cod; always working from one single end, which he never breaks himself; and which is so fine, and so long, that those who have nicely examin'd it affirm, that each cod contains *silk* enough to reach the length of six *English* miles. In ten days time the cod is in its perfection, and is now to be taken down from the branches of the mulberry-tree, where the worms have hung it. But this point requires a deal of care, for there are some worms,  
more

more lazy than others; and 'tis very dangerous waiting 'till they make themselves a passage, which usually happens about the fifteenth day of the month.

The first, finest, and strongest cods or balls, are kept for the grain; the rest are carefully wound: or, if 'tis desired to keep them all, or if there be more than can be well wound at once, they lay them for some time in an oven moderately hot, or else expose them for several days successively, to the greatest heats of the sun, in order to kill the maggot; which, without this precaution, would not fail to open itself a way to go, and use those new wings abroad it has acquired within. Ordinarily they only wind the more perfect cods. Those that are double, or too weak, or too coarse, are laid aside; not as altogether useless, but being improper for winding, they are reserv'd to be drawn out into skains. The cods are of different colours; the most common are yellow, orange-colour, Isabella, and flesh-colour.

There are some also of a sea-green, others of a sulphur colour, and others white; but there is no necessity of separating the colours and shades, to wind them apart; as all the colours will be lost in the scouring and preparing of the *silk*.

*To wind the silk from off the cods*, two machines are necessary; the one a furnace with its copper; the other a reel, or frame, to draw the *silk*. The winder, then seated near the furnace, throws into the copper of water over the furnace (first heated and boiled to a certain degree, which custom can only teach) a handful or two of cods, which have been first well purged of all their loose furry substance. He then stirs the whole very briskly about with birchen rods, bound and cut like brushes; and when the heat and agitation have detach'd the ends of the *silks* of the pods, which are apt to catch on the rods, he draws them forth, and joining ten or twelve, or even fourteen of them together, he forms them into threads, according to the bigness required to the works they are design'd for; eight ends sufficing for ribbons; and velvets, &c. requiring not less than fourteen. The ends thus join'd into two or three threads, are first pass'd into the holes of three iron rods in the fore-part of the reel; then upon the bobbins, or pullies, and at last are drawn out to the reel itself, and there fastned, each to an end of an arm or branch of the reel. Thus disposed, the workman giving motion to the reel, by turning the handle, guides his threads, substitutes new ones, when any of them break, or any of the cods are wound out; strengthens them where necessary, by adding others; and takes away the cods wound out, or that, having been pierced, are full of water. In this manner two workmen will spin and reel three pounds weight of *silk* in a day, which is a greater dispatch than is made by the spinning-wheel, or distaff. 'Tis true, all *silks* cannot

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cannot be spun, and reel'd after this manner; either by reason the cods have been perforated by the *silk-worms* themselves, or because they are double, or too weak to bear the water; or because they are coarse, &c. of all these together, they make a particular sort of *silk* called *Fleuret*: which being carded, or even spun on the distaff, or the wheel, in the condition it comes from the cod, makes a tolerable good *silk*.

As to the cods, after opening them with scissars, and taking out the beans (which are of some use for the feeding of fowl) they are steeped three or four days in troughs, the water whereof is changed every day to prevent their stinking. When they are well softened by this scouring, and clear'd of that gummy matter, the *worm* had lined the inside withal, and which renders it impenetrable to the water, and even to air itself; they boil them half an hour in a lie of ashes, very clear, and well-strained; and after washing them out in the river, and drying them in the sun, they card and spin them on the wheel, &c. and thus make another kind of *Fleuret*, somewhat inferior to the former. SPIDER-SILK, *see* SPIDER.

SILVER is a white metal, holding the second place among metals; being of all others after *gold* the finest, purest, most ductile and most precious.

There are *silver* mines in all the four quarters of the world. *Europe* has its share; nor is *Great-Britain* quite destitute of them, tho' it has not any of great value.

The mines of *Peru* and some other parts of *America* are much the richest and most abundant; they appear almost inexhaustible: particularly those of *Potosi*, which continue to be dug with equal advantage, as when first discover'd; with this only difference, that the veins which were then almost in the surface of that mountain are now sunk to prodigious depths; the workmen going to them by a painful descent of four or five hundred steps.

Many millions of *Indians* have perish'd in them; and great numbers are still destroy'd yearly.

The ores or mineral stones they dig are not all of the same quality, consistence or colour; some are white or ash-colour'd, spotted with red or blue, and call'd *Plata-blanca*.

Others are black, and call'd *Ploxo-ronco*.

These last are the richest and the easiest wrought, no *mercury* being here requir'd; nor any thing, but to put them in the fire; where the *lead* evaporating, leaves the *silver* pure.

The *Indians* knowing nothing of the use of *mercury*, before the arrival of the *Spaniards*, melted none but this last kind of mineral.

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There is another mineral, they call *rossicler*, which is black, and is distinguish'd by whetting and rubbing it against *iron*, which turns it red.

This ore is very rich, and the metal it yields is of the best sort.

That call'd *Loroche* burns like *talc*, and looks as if it were *silver'd*, but does not yield much.

The *Pacho* is of a yellow red, very soft, and found almost broke in pieces: this is not rich.

The *Cobritto* is green and half friable; tho' the *silver* be visible, yet it is exceeding difficultly drawn from it, by reason of the *copper* wherewith it is intermixt.

In the last place, the *arannear*, which is only found in *Potosi*, and that only in the mine of *Cotamito*, consists of threads of pure *silver*, interwove like a *silver* galoon, that has been burnt to get out the silk.

The *silver veins*, of what quality soever, are usually richer in the middle than towards the extremes; but the richest places are those where the veins intersect.

It is accounted a great addition to the richness of a mine to be near a river, for the advantage of the mills to grind the ore. As for instance at *Lipes* and *Potosi*, the *caxon* of ore must yield ten marks to defray expences; whereas at *Tanava* there needs not more than five.

The most usual way of separating the *silver* from the ore is by what they call *Pignes*; but however, sometimes they use nothing but fire frequently repeated, or *aqua-fortis*.

That which renders the working of the mines exceedingly dangerous, is the exhalations arising from them, which are felt even on the outside, and do affect also animals grazing on the outside in their neighbourhood, but stupify the miners in the inside; none of whom can bear so poisonous an air a day together.

Sometimes it is so fatal, that it kills upon the spot; and obliges them to stop up the veins again, whence it exhales.

The mines of *Potosi* are not so subject to them by far, and yet without the herb *Paraguay*, the infusion of which is taken by the miners, as we do that of *tea*, those mines must be soon abandon'd.

Tho' the mines of *Potosi* and *Lipes* still keep up their reputation, yet there have been several discover'd within this few years, which far exceed them in richness; as the mines of *Oruro* eighty leagues from *Arica*, those of *Ollachea* near *Cusco*, open'd in the year 1712.

It is remarkable that most of the mines in *America* are found in cold and barren places.

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The method of separating *silver* from the ore in *Europe* is the same as that of gold, that is, by means of *quicksilver*; with this difference, that for *silver* to every fifty hundred weight of ore is added one hundred weight of rock-salt, or some other natural salt. See that curious operation under the article GOLD.

To separate the *silver* from the *mercury*, with which it is amalgamated; they have a furnace open at the top, and the opening cover'd with a kind of capital, made of earth of a cylindrical form; that may be clapt on or taken off at pleasure.

The mass of *silver* and *quicksilver* being laid in the furnace and the capital apply'd, and the fire lighted underneath, by this means the *quicksilver* rais'd by the action of the fire in form of vapours, is caught in the capital, and taken thence, to be us'd in the second operation.

The standard of fine *silver* is twelve penny weights, each consisting of twenty-four grains.

When 'tis below this, it must be rais'd to it by refining, which is usually perform'd by means of *lead*.

In order to this, a coppel is fill'd with a mixture of brick-ashes and ashes of a bullock's and other bones.

'Tis set on the fire, and heated red-hot; in which state the *silver* and *lead* are put in together, in the proportion of a pound of *lead* to eight ounces of *silver*, and even somewhat more *lead*, if the *silver* be very coarse.

As these two metals melt together, the copper before mixt with the *silver* dissipates into smoak or goes away with the scum; and so does the *lead* itself, leaving the *silver* alone in the coppel in its proper degrees of fineness.

In this method of refining, wherein six or seven thousand pounds may be refin'd at once, the metal is drawn out of the coppel two ways; the one by plunging in it, while still liquid, a thick bar of iron, round which, the *silver* sticks in form of a shell or crust, repeating this again and again; the other is by letting the coppel stand till 'tis cold; in the bottom of which, the *silver* fixes in form of a cake.

Besides the refining of *silver* with *lead*, there is another manner of doing it with *salt-petre*, the manner of which is describ'd under the article REFINING.

But both the one and the other are tedious and troublesome, when perform'd on large quantities.

This gave occasion to M. *Homburg* to endeavour to shorten the operation; which he effected with good success.

*This method is as follows,*

To calcine the *silver* with half its weight of common *sulphur*, and after melting the whole together, to cast a quantity of steel filings upon it at several times.

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Upon this, the sulphur quits the *silver*, and joins itself to the iron, and both are converted into *scoria*, which swims on the *silver*, and the metal itself is found pure at the bottom of the crucible.

The essay of *silver* is also made by the coppel, in the same manner, as the refining by *lead*.

If the *silver*, after this essay, preserves its weight, 'tis standard; if it loses, the grains, or even penny-weights of its diminution are accounted.

SILVER WIRE is *silver* drawn thro' the holes of a wire-drawing iron, and by this means reduc'd to the fineness of a thread or hair. As for the manner of drawing it, *see under the article GOLD WIRE*.

SILVER LEAF is what the gold-beaters have reduc'd to fine thin leaves, to be us'd by *gilders*, &c. *See GOLD LEAF*.

SHELL SILVER is made of the threads of *silver leaves* or the leaves themselves; used in painting and silvering certain works: *shell silver* is prepar'd after the same manner as *shell gold*. *See GOLD*.

*To lay on a ground to GILD and SILVER upon.*

Steep two ounces of fine *bole-armoniac* (well chosen, fresh, and greasy to the touch;) in water to dissolve, and afterwards grind it, adding to it the quantity of a filberd of *crayon*, and of a pea of tallow, (which is enough for one grinding) which are to be prepar'd as follows:

Melt them and put them into fresh water, and work them well with your fingers;

And as you grind it, put a little soap-suds among the *bole*.

When this compound has been ground, put it into fair water, changing the water from time to time to preserve it.

When this is to be used, it is to be tempered with warm size; and if it prove as strong as what you whitened with, put in a third of water, and mix it with the *bole*, which must be made of the thickness of a cream; then lay it on the work with a pencil, and go over the whole with it three or four times; letting it lie to dry each time before you go over it again; and when it is finished and dry, rub it with a soft cloth, before you proceed to lay on the *gold* or *silver*.

When this ground is us'd for *gold*, a little *red lead* must be added to it.

*To MATT SILVER.*

Grind white *ceruss* with water, and then temper it with *Ichthyocolla* or fish-glue, or else glove-size very fine; the first is the most beautiful. It must be laid with a pencil on the places that you matt.

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### To SILVER COPPER or BRASS.

1. Cleanse the metal with *aqua fortis*, by washing it lightly with it, and immediately throwing it into fair water, or by heating it red-hot, and scouring it with salt and tartar, and fair water with a small wire brush.

2. Dissolve some fine *silver* in *aqua fortis* in a broad bottom'd glass vessel, or of glazed earth, then evaporate away the *aqua fortis* over a chafing-dish of coals.

3. Put five or six times its quantity of water, or as much as will be necessary perfectly to dissolve it, on the remaining dry *calx*; evaporate this water with the like heat: then put more fresh water, and evaporate again, and if need be, the third time; making the fire towards the latter end so strong, as to leave the *calx* perfectly dry; which, if your *silver* be good, will be of a pure white.

4. Take of this *calx*, *common salt*, *crystal of tartar*, of each a like quantity or bulk, but not in weight; mix all well, then put the metal into fair water, and take of the aforesaid powder with your wet fingers, and rub it well on, 'till you find every little cavity of the metal sufficiently silver'd over.

5. If you would have it richly done, you must rub on more of the powder; and in the last place wash the silvered metal in fair water, and rub it hard with a dry cloth.

This, tho' done without *quicksilver*, may last some years; and when the *silver* begins to wear off, may as easily be renew'd.

### To counterfeit SILVER.

Take crystal *arsenick* eight ounces, *tartar* six ounces, *saltpetre* two ounces, *glass* one ounce and an half, and of *sublimate* half an ounce; reduce them separately into a fine powder, and mix them; then take three pound of *copper* in thin plates, and put them into a crucible (with the former ingredients, layer upon layer) to calcine, covering it, and luting it strongly, set it in the furnace, and there let it stand for eight or ten hours; then take it out, and when it is cold, break the pot, and take out all the matter, and melt it with a violent fire, casting it into a mould.

Then take purged brass two pound, of the former metal one pound, melt them together, casting in now and then some of the aforesaid powder; after which, add as much of fine *silver*, melting them together, and you have what you desired.

Lastly, to make it as white as *silver*, boil it in *tartar*.

### Another way to counterfeit SILVER.

Take of purified *tin* eight ounces, *quicksilver* half an ounce; and when it begins to rise in the heat, cast into it powder of *cantharides* with a lock of hair, that it may burn in it; and being melted, put into it the aforesaid powder, then take it suddenly from the fire, and let it cool.



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## *To whiten SILVER.*

*Silver* vessels, or instruments boil'd with *salt*, *alum*, and *tar-tar*, gives them that whiteness and clearness, which they would scarcely be brought to by brushing, pumice-stone, or putty: old sullied pieces may be brought in a trice to the like fairness by warm *aqua fortis*.

## *To prepare the SILVER dye.*

Allow half a pound of *alum* for every fifteen yards of stuff, and three quarters of *fænugreek*, let them boil for half an hour, then add one pound of *pot-ashes*, and half a pound of *Brasil*, in which boil the stuffs for a quarter of an hour.

*Another.* To dye a pair of stockings; take six *galls*, and an equal weight of *gum Arabick*, and the like weight of *alum*, with a small quantity of brown *Brasil* wood; boil these in rain-water, then cool the stockings out of the liquor three times.

## *To dye Stuff a lasting SILVER dye.*

First tinge the stuffs of a light *grey* in the *woad*, then rinse it clean, and dry it; but you must take notice, that the whiter the stuff is before it is dyed, the brighter will be the lustre.

To black or deepen it; take an ounce and half of powdered *galls*, four ounces and a half of *vitriol*, and half an ounce of *sal-armoniac*, two ounces of *madder*, and a quarter of an ounce of *salt-petre*; and prepare them as the ash-colour above-mentioned.

But if you would have it incline more to the red, add two ounces of boil'd *Brasil*, two ounces of sharp lye, a quarter of an ounce of calcin'd *alum*, and a drachm of calcin'd *tartar*, and it will appear very beautiful.

## *To soften SILVER.*

Boil *salt-petre*, *tartar*, *salt*, *verdet*, all together, 'till the water is consum'd; then put to it urine, and let it so consume, and you will have an oil, which put into melted *silver*, and it will soften it.

*Or thus*; Put as many wedges, as you have melted one night, into a crucible, and set it into a furnace, but so as they may not melt, and they will be soft and fair.

*Or thus*; Take honey and oil, of each a like quantity, quench *silver* or *gold* in it three or four times, and it will be softer.

*Or thus*; Take *mastich*, *frankincense*, *myrrh*, *borax*, of each alike in powder.

*Or thus*; Quench *silver* or *gold* in water of *sal-armoniac*, and it will be soft.

## *To tinge Silver of a Gold colour.*

Take fine *gold*, fine *silver*, good *brass*, or *brass* and *copper* calcin'd with *sulphur vivum*, of each a like quantity, melt them  
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down together, and it shall appear to be gold of eighteen carats fine.

### *Another way to tinge Silver.*

Take of *quicksilver* purg'd an ounce and a half, of leaf-gold half an ounce, mix them, and put them into a glass retort well luted, set it on the fire 'till it grow hot; then take it off, and add to it *quicksilver* purg'd one ounce, *sal armoniack* half an ounce, *sal ellebrot* a quarter of an ounce, *borax* one drachm, then seal up the glass hermetically, and set it into a continual fire for three days; then take it out, and let it cool, open the retort, take out the matter, and powder it very fine; of which powder mix one ounce with five ounces of *silver*, and it will tinge it into a good gold colour.

### *The way to make Sal Ellebrot.*

Take pure *common salt*, *sal gemma*, and *sal alkali* in powder, of each half an ounce, juice of *mint* two ounces, spring-water two pounds, mingle them and evaporate.

*Quicksilver* also is purg'd by washing it in sharp vinegar three or four times, and straining it through a shammy leather, or by subliming it, which is better.

### *To bring Silver into a Calx.*

This is done by making it into an amalgama with *quicksilver*, and then subliming it; or by dissolving it in *aqua fortis*, and precipitating it with the solution of salts in fair water, and then washing it often with fair water to free it from the salts; or else by mingling the filings with sublimed *mercury*, and afterwards causing the *mercury* to ascend in a retort, which will leave at bottom the calx of *silver* fit for jewels, &c.

### *To blanch Silver.*

Take *sal armoniac*, *roch alum*, *alum plumosum*, *sal gem*, *argol*, *Roman vitriol*, of each a like quantity, powder them, mix them, and dissolve them in fair water; in this boil the *silver* so long, 'till you find it of an excellent whiteness.

### *To colour Silver of a Gold colour.*

Take *salt-petre* three pound, *roch-alum* seven pound and an half; mingle them, and distil them keeping the water for use.

When you use it, melt the *silver*, and quench it in the said water.

### *To silver any metal.*

Dissolve fine *silver* in strong *aqua fortis*, put to it so much *tartar* in fine powder, as will make it into a paste, rub the metal with it, and it will look like fine *silver*.

SIN is represented [in *Painting*, &c.] by a youth blind, black and stark naked, seems to walk through crooked ways, and by precipices, girt round with a serpent gnawing his heart.

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His youth denotes his imprudence and blindness, in committing *sin*; his wandering shews his deviating from, and transgressing the law; black and naked shews, that *sin* deprived men of grace, and the whiteness of virtue; the serpent is the devil continually seeking to delude with false appearances.

SINCERITY is represented [in *Painting*, &c.] by a young woman in a thin golden robe, she holds a human heart in her left hand, in her right a white dove; both signify, that true *sincerity* is incapable of hypocrisy, her integrity makes her fear nothing, she makes her actions manifest by disclosing her heart to all people.

### *To make* ISING-GLASS SIZE.

Take fine ising-glass in small bits one ounce, fair water a quart; let it stand for twelve hours only warm, and afterwards boil it, but very gently, and continue the simmering 'till it is all dissolv'd; the water also being wasted away to a pint or less, let it cool and keep it for use.

It will be thick like a gelly, but will not keep above three or four days, so that you ought to make no more at once, than present occasion requires

### *To make* GOLD SIZE.

Take *gum animi*, *asphaltum*, of each one ounce, *minium*, *li-tharge of gold*, and *umber*, of each half an ounce, reduce all into a very fine powder, and add to them of *linseed-oil* four ounces, of drying oil eight ounces; digest over a gentle fire, that does not flame, so as it may only simmer and bubble up, but not boil (for fear it should run over and set the house on fire) keep it constantly stirring with a stick, 'till all the ingredients are dissolv'd and incorporated, and don't leave off stirring it, 'till it becomes thick and ropy, and is boil'd enough; let it stand 'till it is almost cold, and then strain it through a coarse linnen-cloth, and keep it for use.

### *To prepare it for working.*

Put according to the quantity you shall use in a horse-muscle shell, and so much *oil of turpentine* to it, as shall dissolve it, making it as thin as the bottom of your *seed-lac varnish*, hold it over a candle to melt, and then strain it through a linnen rag, into another shell; add to these so much *vermilion* as will make it of a darkish red.

If now it is too thick for drawing, you must thin it with *oil of turpentine*. The chief use of this size is for laying on of metals.

### *The best* Gold Size *for burnishing.*

Take fine *bo'e* what quantity you please, grind it finely on a marble, then scrape into it a little fine beef-suet, grind all well together;

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together ; after which mix a small proportion of parchment *size*, with a double proportion of water, and it is done.

### *To make Silver Size.*

Grind fine *tobacco-pipe clay* fine, (and if you will, you may add a little *lamp-black* to turn it of a light ash-colour) scrape into it a little *deer's suet*, and grind them all extremely fine ; then add a mixture of *size* and water, as before directed.

### *Another Silver Size.*

Take *tobacco-pipe clay* in fine powder, scrape some black lead, and a little *Genoa soap* ; and grind them all together with *parchment-size*, as above directed.

### *A Size for either Silver or Gold.*

Take fine *bole* in fine powder one pound, *black lead* two ounces, grind them together ; then add of *oil olive* two scruples, and *bees-wax* one scruple, melted together ; grind all these very finely in a mals ; and in the last place, grind them together with *parchment-size* and water

But remember never to grind more *gold* and *silver size* at a time than will serve the present occasion.

### *To make Parchment-Size.*

Boil cuttings of clean parchment one pound in two quarts of fair water to a gelly ; strain it hot, then let it cool, and it will be a strong *size*.

This may be us'd, as well as for the former uses, in white *japan* work instead of *ising-glass size*.

### *The way of using this Size.*

Melt some of it over a gentle fire, and scrape into it as much whiting, as may only colour it : mix and incorporate them well together with a clean pencil ; with this you may whiten frames, rubbing it well in with your brush, that it may enter into every hollow place of the carv'd work, &c. letting it dry on.

Then melt the *size* again, and put in more whiting, so as to make it somewhat thick, and whiten the frames over again seven or eight times, letting it be thoroughly dry between each time ; but after the last going over, before it is quite dry, you must dip a clean brush pencil in fair water, to wet and smooth it over ; and when it is thoroughly dry, brush it over, as the necessity of the work shall require.

After this, with a googe or chissel, not half a quarter of an inch broad, open the veins of the carv'd work, which the *whiting* has choak'd up ; then smooth and water plane it all over with a fine rag wetted, and your finger ; let it be dry, and then it is fit to receive the former *gold Size*.

### *To make Gold Size in oil.*

Take *yellow oker* in fine powder, what quantity you please, mix it with an indifferent fat *linseed-oil* a sufficient quantity, grind

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grind them well together, and put the mass into a gallipot, upon which put some fat oil, to keep it from skinning over; cover it close with a piece of bladder or paper, and keep it for use.

It will keep good for ten or twelve years, and be the better, and not the worse.

If you would have your work extraordinary well done, prime it over thinly twice, and let it stand to dry for four or five days.

*As to Ising-glass Size, you are to use the following caution.*

When you lay blues, whites, or any other colours with it, let it not be too strong, but rather weak, and sufficient to bind the colours, and make them stick on the work; for if it is too strong, it will be apt to crack or fly off.

But when you lay or wash with clear ising-glass to keep your varnish from soaking in, or tarnishing your colours, then it must be strong, and of a full body.

*To make GLOVE-LEATHER SIZE.*

Take half a pound of the cuttings of white gloves, and put them in water, letting them steep for some time; then boil them in a pot with six quarts of water, 'till it be consumed to one; then strain it through a cloth in a new earthen pan.

To try whether the *size* is strong enough, when it has stood 'till it is cold, feel it with your fingers, and if it feels firm under your hand, it is done.

*To colour SKINS a light BLUE or TURKEY colour.*

Take *smalt* four ounces, *red wine* half a pint, and *alum* four ounces, *vinegar* a pint, and *white starch* an ounce; set them over a gentle fire, but do not suffer them to be over thick; soak the *skins* in *alum* water, and hang them up to dry; add to this colouring a pint of gum water, tolerably thick, lay it on when dry, glaze it over, and polish it.

*To dye SKINS a CRIMSON colour, &c.*

Take hard soap, scrape three ounces, and dissolve it in fair water, and add to it three ounces of *alum*; boil them over a gentle fire, 'till the water grow clammy, or a little inclining to thickish; then put in a few grains of *cochineal*, half an ounce of *lake*, two ounces of *red lead*, and a quarter of an ounce of *vermilion*, and a small piece of *indigo*; mix them well by stirring them together, and keep them upon a gentle fire, 'till they are about the thickness of the white of an egg; then having first rubb'd the *skin* over with *alum* water, and hung it up to dry, apply this colour, as is directed for others.

*Another fair RED for SKINS.*

First wet the *skins* or *pelts* in *alum* water, in which a like quantity of *salt*, with half as much *lime*, has been dissolv'd; then stretch them, and dry them, take a quart of the last brewer's drink, and put into it an ounce of *Brasil* powder or raspings, a quarter

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quarter of an ounce of *vermilion*, and an ounce of *alum* powder; thicken them over a gentle fire by continual stirring, and so with a brush or cloth rub over the *skins* evenly, not laying it thicker in one place than another, and this do three times successively, suffering them only to dry the mean while; and being thus done, they will be according to your expectation.

### To colour SKINS GREEN.

Take the leaves of nightshade, bruise them in a mortar, strain out the juice, and dissolve in each pint two ounces of *alum*, to which add half an ounce of *verdigrease*, and heat them gently over the fire; then let it stand for twenty-four hours, and strike over the *skins* with a brush with it warm; let them dry and go over them again, 'till they have taken a lively colour.

### To colour SKINS a light GREEN.

Take the herb call'd *horse-tail*, bruise it, and add to the juice a small quantity of *verdigrease*, *alum*, and *copperas*, make it into a colour over a gentle fire, and it will prove a very pleasant colour.

### A liquor for GILDING SKINS, METALS, or GLASS.

Boil two pounds of *linseed oil* in a well-glaz'd vessel, 'till it will burn a feather being put into it; then put into it *pitch*, *rosin*, dry *varnish*, or *sandarach*, of each something better than five ounces, of *aloes hepatica* two ounces and three quarters; let them be powdered and put into the oil, encreasing the fire by degrees, and keeping stirring them with a stick.

If the liquor is too clear or bright, you may add an ounce or two more of *aloes succotrina*, and diminish the varnish, and so the liquor will be darker and be more like gold.

Having boiled it enough, strain it, and keep it in a glass for use, and use it with a pencil brush.

SLEEP (is call'd the brother of death) was painted of a most four, lowring, and melancholy aspect, aged, and holding in her right hand a young child very beautiful, and in her left another child, of a most swarthy, black, and dull complexion, with legs and arms very crooked.

*Philostratus* in a tablet he made for *Amphiarus*, represents her as an aged woman, slothful and sluggish, clothed with several garments, the undermost of which is black, and the upper one white, holding in one of her hands a horn pouring forth seeds.

By the garment is signified night and day; by the seed, rest, ease, and quiet.

GASPARS SMITZ, *alias* MAGDALEN SMITH, was a *Dutch* painter, who came over to *England* about fifty years ago. He practised some time in *London*, but upon the encouragement of a lady of quality, he went over to *Ireland*, where he gained the greatest esteem, and had very large prices for his work; he painted

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painted portraits in oil of a small size; but his inclination led him most to *Magdalens*, from whence he had his name.

These *Magdalens* were very gracefully disposed, beautifully coloured, expressing the character of grief and penitence. He had also a particular talent for painting fruit and flowers, insomuch that one bunch of grapes of his performance was sold in *Ireland* for forty pounds. He seldom failed to introduce a thistle into the fore-ground of his *Magdalens*, which he painted after nature with wonderful neatness; he died in *Dublin* about forty years ago.

SMOKE [*in painting in miniature*] is imitated with *black indigo* and *white*, and sometimes with *bistre*.

You may also add *vermilion* or *oaker*, according to what colour you would have it.

*The SNOW-DROP.* Cover and finish as for the *lilly*, do the seed with *masticote*, and shade with *gall-stone*; let the green be *verditer* and *iris*.

### *Dying of SNUFF colours.*

#### 1. *To dye a Snuff colour.*

Take water a sufficient quantity, *nut-galls* in powder one pound, *madder* four ounces and a half, *red wood* ground one pound, *fustick* four ounces; make them boil, and enter twenty yards of broad cloth, handle it, and boil two hours, and cool; add *copperas* four ounces, enter your cloth, and handle it, and boil it a quarter of an hour, and cool it; if you would have it sadder, use the more *copperas*.

#### 2. *Another Snuff colour.*

Take clear stale bran-liquor *q. s.* *alum* three pounds, enter twenty yards of broad cloth, boil three hours, cool and wash it. Take fair water *q. s.* *nedder* or *strawel* a sufficient quantity, boil well, cool with a little water, enter your cloth, and make a bright yellow, cool and wash again; take fresh bran-liquor *q. s.* *madder* four pound, *galls* eight ounces, enter your cloth at a good heat, handle it to a boiling, cool and wash it. *Note q. s. signifies a sufficient quantity.*

#### 3. *An observation.*

In making a light *snuff* colour, you must put in the less *copperas*; if you would have it to look greenish, you must use the more *fustick*; but if you would have it look more red, use the more *red wood*.

#### 4. *Another Snuff colour.*

Take water *q. s.* *logwood* one pound, *fustick* and *sumach* of each two ounces; mix and make the lead boil strongly, enter your cloth, and boil a quarter of an hour, and so cool; add *copperas* eight ounces, and so sadden as you see occasion.

#### 5. *Another Snuff colour.*

Take water *q. s.* *red-wood* ground two pounds, *Brasil* ground one pound, *sumach* one pound, *nut-galls* bruised small two ounces; boil,



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boil, enter your cloth, boil two hours, then add *copperas* a pound and half; enter your cloth, and sadden as you think fit.

### 6. *Another Snuff colour.*

Take water *q. s.* *fustick* two pounds, *madder* one pound, *red-wood* ground half a pound, let them boil, and then enter twenty yards of broad cloth, handle it and let it boil two hours, and cool it; add *copperas* four ounces, which is enough for the lighter colour; then enter your cloth, handle it, boil half an hour, and then take it out and cool it.

FRANCIS SNYDERS born in 1579, scholar of *Henry van Balen*, liv'd at *Antwerp* and in *Italy*, excell'd in painting wild beasts, hunting, fish, fruit.

SOAP is a sort of paste sometimes hard and dry, and sometimes soft and liquid, much us'd in washing and whitening linsens; and also by dyers, fullers, and many other workmen.

The principal *soaps* of our *English* manufacture are the *soft*, the *hard*, and the *ball soap*; the *soft soap* again is either *green* or *white*, the process of making each kind is as follows;

1. The *green soft soap*; the principal ingredients us'd in making *green soap*, are lyes drawn from pot-ashes, and lime boil'd up with tallow and oil.

First the lye and tallow are put into the copper together, and when melted, the oil is put to them, and the copper made to boil; then they damp or stop up the fire, while the ingredients remain in the copper to knit or incorporate; which being done, they set the copper a boiling again, feeding or filling it with lyes as it boils, 'till they have put in a sufficient quantity; after which they boil it off with all convenient speed, and put it into barrels.

2. *White soap*; of this one sort is made after the manner that *green soap* is; excepting that they do not use any oil in this.

Another sort of *white soft soap* is made from lyes of ashes of lime, boil'd up at twice with tallow.

First they put a quantity of lyes and tallow into the copper together, which is kept boiling, being fed with lyes as it boils, 'till it is boiled enough, or that they find it grains; then they separate or discharge the lyes from the tallowish part, which they put into a tub, throwing away the lye, this they call the *first half-boil*.

Then they charge the copper again with fresh tallow and lye, and put the first *half-boil* out of the tub into the copper a second time, and keep it boiling with fresh lye and tallow, 'till it is brought to perfection, and afterwards filled out into soap-casks.

3. *Hard soap* is made of ashes and tallow, and commonly boil'd at twice; the first boiling they also call a *half-boiling*, which is perform'd exactly after the same manner as the first *half-boil* of the *soft white soap*.

Then

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Then they charge the copper again with fresh lye, and put into it the first *half-boil* again, feeding it with lye, as it boils, 'till it is boil'd enough, or 'till it grains; then they discharge the lye from it, and put the *soap* into a frame to boil and harden.

*Ball-soap* is made also of lye from ashes and tallow; they put the lye into the copper, and boil it 'till the watery part is quite gone, and there is nothing left in the copper but a sort of nitrous matter (which is the very strength and essence of the lye) then they put tallow to it, and keep the copper boiling and stirring for half an hour or more, in which time the soap is completed, which they put into tubs or baskets with sheets in them, and immediately (while soft) make it into balls.

It takes up near twenty-four hours to boil away the watery part of the lye.

SODA, which comes from *Egypt* and *Spain*, derives its name from the abundance of salt it contains; it is made of the same herb as the *polverine* and *rochetta* of the *Levant*, and is of the same sort and nature with that; and tho' this herb grows in great quantities in many places, and comes naturally among water, and commonly flourishes near lakes, yet it is planted on the banks of the *Mediterranean* in *France*, *Spain*, and in *Egypt*, where by reason of the heat of the climate it grows in great quantities, but it has the most sharpness and is strongest in *Egypt*, where there is never any rain.

It is green all the winter, but they commonly cut it in the middle of the summer, when it is in its full vigour; after it has been dry'd by the heat of the sun, they gather it on heaps, and burn it on hurdles or grates made of iron; the ashes falling through into a pit, made underneath on purpose, there they grow into a hard mass or stone, and are gathered and laid up for use, and are call'd *soda*, and their salt ALKALI, and are us'd for making glass and crystal. See ROCHETTA, POLVERINE, and CRYSTAL.

SOFTENING [in *Painting*,] is the mixing and diluting of colours with the brush or pencil.

Painters often use the term, *soften* designs in black and white made with the pen, &c. to weaken the tint. To *soften* a portrait, according to *Felibien*, is to change some of the strokes, and give it a greater degree of sweetness and softness to the air thereof; which before had something rough and harsh in it.

SOLDER } is a metallic or mineral composition, used in sol-  
SODDER } dering or joining other metals.

*Solders* are made of *gold*, *silver*, *copper*, *tin*, *glass of tin*, and *lead*; always observing, that in the compositions, there be some of the metal that is to be *solder'd*, mix'd with some finer and higher metals.

*Goldsmiths*

## S O L

*Goldsmiths* make four kinds of *solder*, viz. *solder* of eight; where to seven parts of *silver*, there is one of *brass* or *copper*. *Solder* of six, where only a sixth part is *copper*; *solder* of four, and *solder* of three. It is the mixture of *copper* in *solder* that makes rais'd plate always come cheaper than flat.

The *solder* us'd by *plumbers* is made of two pounds of *lead* to one of *tin*. Its goodness is try'd by melting it, and pouring the bigness of a crown-piece upon a table; for if good, there will arise little bright shining stars in it.

The *solder* for *copper* is made like that of the *plumbers*, only with *copper* and *tin*; for very nice works, instead of *tin*, they sometimes use a quantity of *silver*.

*Solder* for *tin* is made of two thirds of *tin*, and one of *lead*; but where the work is any thing delicate, as in organ-pipes, where the juncture is scarce discernable, 'tis made of one part of *tin* of *glass*, and three parts of *pewter*.

To solder upon *silver*, *brass*, or *iron*.

Take *silver* five penny weight, *brass* four penny weight, melt them together for soft *solder*, which runs soonest.

Take *silver* five penny weight, *copper* three penny weight, melt them together for hard *solder*.

Beat the *solder* thin, and lay it over the place to be *soldered*, which must be first fitted and bound together with wire, as occasion requires; then take *borax* in powder, and temper it like pap, and lay it upon the *solder*, letting it dry; then cover it with quick coals and blow, and it will run immediately; take it presently out of the fire, and it is done.

*Note 1.* That if a thing is to be solder'd in two places (which cannot be well done at one time) you must first *solder* with the *hard solder*, and then with the soft; for if it be first done with the soft, it will *unsolder* again before the other is *soldered*.

2. That if you would not have your *solder* run about the piece that is to be *soldered*, rub those places over with *chalk*.

**SOLDERING** is the joining or fastening together of two pieces of the same metal, or of two different metals, by melting and applying some metallic composition on the extremities of the metals to be join'd.

In the *soldering* either of *gold*, *silver*, *copper*, and all the metals before-mentioned, there is generally us'd *borax* in powder, and sometimes *rosin*.

As to *iron*, it is sufficient that it be heated red-hot, and the two extremities thus hammer'd together: and by this means they become incorporated together.

**V**<sup>\$</sup>*or***N**<sup>\$</sup> VIRGILIO SOLE engrav'd a great many pieces in copper and wood in *Hisbin's* taste. He engrav'd the new and old testament in 200 plates, the me-  
tamor-

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tamorphosis of *Ovid* in 170 small plates, hunting-pieces in great and small, &c. He sometimes made the letter V on one side of the plate, and S on the other.

**V S** VIRGILIO SOLE of *Brussels*, his mark under a dead *Christ*, engraven on a large plate in 1542.

**SOOT** is an earthy, volatile matter, arising from wood, coals and other fuel, along with the smoak, by the action of fire; or it is rather the smoak itself, fix'd and gather'd on the sides of the chimney.

*Dyers* make considerable use of *soot*, for a kind of dun colour, which 'tis true has no agreeable smell; but then to answer to that, has the property of saving cloths and other stuffs from moths.

The *soot* found in the furnaces of glass-houses is used by painters.

*Soot of frankincense* is the smallest and finest part of the *Incense*, call'd *Olibanum* or *male Incense*; burnt after the manner of *rosin* to make lamp-black.

SORROW	}	is an unpleasant faintness, by which the soul receives the inconveniences of the evil, or of the defect represented to it by the impressions of the brain.
SADNESS		
GRIEF		
DEJECTION		

This passion is represented [in *Drawing, Painting, &c.*] by motions which seem to indicate the inquietude of the brain, and the dejection of the heart; the eye-brows being more rais'd in the middle of the forehead than next the temples.

They who are troubled with this passion have their eye-balls dull, the white of their eye inclining to yellow, the eye-lids hanging down, and something swell'd; black and livid round the eyes, the nostrils drawing downwards, the mouth open and the corners thereof drawn down; the head appears carelessly hanging on one of the shoulders, the complexion of a kind of lead colour, and the lips pale and wan. *See the Plate.*

*Sorrow* produces a dejection of the heart, by which all the parts of the face are cast down.

**SOUTH** is represented [in *Painting, &c.*] by a black-moor boy, a sun upon his head, surrounding him with its rays; upon his girdle are the signs *Taurus, Virgo* and *Capricornus*; arrows in his right hand, in his left a branch of the *lotus*.

The *zone* wherewith he is girded denotes the meridional signs; the arrows, the sun's penetrating into the very bowels of the earth; the *lotus* at the sun beginning to appear, appears out of the water, and according as the sun ascends, so does it; at noon it stands upright, and so in the afternoon it follows the sun, 'till it enters into the water again.

SPEC-

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**SPECTACLES**, an optic machine, consisting of two *lens's* set in horn, or other matter, and applied on the nose, to assist in defects of the organs of sight. *See* LENS.

Old people and all Presbytræ use *spectacles* of convex *Lens's*, to make amends for the flatness of the Eye, which does not make the rays converge enough to have them meet in the retina.

Short sighted people, or myopes, use concave lens's, to hinder the rays from converging so fast, through the great roundness of the eye, as to make them meet e'er they reach the retina.

In *Spain*, and at *Venice* especially, spectacles are used in a different view: all the people of note and fashion there, have them continually on their noses; a folly, that has its source from the natural pride of those people, who value themselves on a profound wisdom, and affect to stare very near at every thing; as if their eyes were weaken'd and worn out with excessive attention. *Vign. de Marv.*

*F. Cherubin*, a capuchin, describes a kind of *spectacle-telescopes*, for viewing of remote objects with both eyes, hence term'd *Binoculi*. Though *F. Rheita* had mention'd the same before him, in his *Oculus Enoch* and *Eliæ*.

The same author invented a kind of *spectacles*, with three or four glasses, which perform'd extraordinarily.

*Spectacles* were certainly unknown to the ancients; yet they are not of so late a date as the *telescope*. *Francisco Redi*, in a very learned treatise on *spectacles*, will have them to have been invented in the 13th century, between the years 1280 and 1311.

**SPELTER** or *Zink*, a sort of imperfect metal, which some confound with *bismuth*, and others with *spalt*; others again make it a female antimony. *See* ZINK.

*Spelter* is a kind of mineral lead, very hard, white, and brilliant; which tho' not perfectly malleable, yet stretches a little under the hammer.

'Tis found in greatest quantity in the mines of *Gosselar* in *Saxony*; and is usually sold in large, square, thick cakes, whence one would judge it to have been melted, as it came out of the mines, and cast into that form.

'Tis used to clear and whiten tin, in making of pewter, much as lead is used to purify gold and silver.

Those, who imagine that the *spelter* is put in to increase the weight, are much mistaken; since in the melting five or six hundred weight of tin, they scarce put in a pound of *spelter*, and that mix'd with turmeric. 'Tis also used, in the making of solder, and with curcuma, in the melting of copper, to give that metal a good colour, which however is not permanent. (*See*

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SOLDER.) The best is white, in fine scales, difficult to break, &c.

S. P. F. signifies *Stephen du Perach fecit*.

SPIDER-SILK. In the year 1710, Mr. *Bon* publish'd a dissertation in *France*, concerning the procuring and preparing silk of the webs of *spiders*, and using it in several manufactures, which is to the following effect :

The *silk-spiders* make a silk every whit as beautiful, strong, and shining, as that made by the silk-worm ; it spins it out of the *anus*, around which are five *papillæ* or small nipples ; and behind these two others, all musculous, and furnish'd with sphincters.

These nipples serve as so many wire-drawing irons, in forming and moulding a liquor, which when dry'd in the air, after it has been drawn through them, is to be the silk.

Mr. *Reaumer* observes, that each of these nipples consists of a number of lesser and insensible ones, which a person may be convinced of, by pressing a *spider's* belly between his fingers, to force the liquor to flow into the nipples ; for by this means applying the finger against the *anus*, several distinct threads will be drawn out through the several perforations of the nipples.

The threads indeed are too fine to be told with any certainty ; but Mr. *Reaumer* supposes, that each larger nipple may send forth six or seven ; hence it is, we find how the *spiders* make threads bigger or smaller : for as before they begin to spin, they always apply either more or fewer of these six nipples against the body, whence the web is begun ; or as they apply each or more or less strongly, so as more or fewer of the insensible nipples come to take ; the thread thus spun will be a compound of more or fewer of the single threads.

Indeed as the threads come from the *anus* all join'd together, they appear to be single, and Mr. *Bon* has distinguished one of the single ones to consist of fifteen or twenty distinct threads.

The threads are of two kinds ; the first is weak, and only serves for that kind of web, wherewith they catch flies. The second is much stronger, and serves for wrapping up their eggs in ; which by means of it are not only sheltered from the cold, but defended from insects, which might otherwise gnaw and spoil them.

These threads they wind very loosely about the eggs, and bear a resemblance to the cods and bags of silk-worms, that have been prepared and loosened from the distaff.

These *spiders-bags*, when fresh and new, are of a grey colour ; but having been long expos'd to the air, turn blackish. There might indeed be found other *spiders-bags*, of other colours, and  
which



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which would afford a better filk; but their scarcity would render the experiment very difficult.

There are indeed *spiders* of several colours, as *black*, *brown*, *yellow*, *white*, &c. and they are again distinguish'd as to the number of their eyes, some having six, others eight, others ten. But as to the *silk-spider* itself, they are by Mr. *Bon* all reduc'd to two kinds; those which have long legs, and those that have short; of which the short-legged are the most common, and those that furnish the *raw-silk*.

These always find out some place secure from the wind and rain, in which to make their bags; as hollow trees, the corner of windows or vaults, or under the eaves of houses.

By collecting a quantity of these bags, a new filk may be made, in nothing, he tells us, inferior to the common filk. It will take all kinds of dyes, and may be wrought into any kinds of stuffs.

Mr. *Bon* had stockings and gloves made of it, which he presented to the Academy, and others of the Royal Society.

*The manner of preparing the bags to get this Silk, is as follows:*

Mr. *Bon*, after he had gathered twelve or thirteen ounces of these bags, had them well beaten for some time with the hand and a stick, to get out all the dust: he after this wash'd them in luke-warm water, 'till they being taken out of the water, left it very clean; after this, they were laid to steep in a large vessel with *soap*, *salt-petre*, and *gum Arabick*.

This with the bags in it was set over a gentle fire, and gently boiled for three hours; then taken out, and wash'd in warm water to get out the soap, and afterwards laid by, to dry for some days, to fit them for carding, which was done by the common *carders of silk*, but with cards much finer than ordinary.

By this management he procur'd a filk of a very particular ash-colour, which was very easily spun, and the thread spun from it, both stronger and finer than that of common filk; by which 'tis evident, that all manner of work may be made of it; nor is there any reason to fear, but that it will stand any trials of the loom, after having undergone, or pass'd through that of the *stocking-weavers*.

The only difficulty is in procuring a quantity of *spiders* bags, in order to carry on a considerable manufacture in it.

But this, Mr. *Bon* says, would be no difficulty at all, if we had but the art of breeding them as they do silk-worms; for they multiply much more, every *spider* laying six or seven hundred eggs, whereas the *silk-worm* does not lay above an hundred: and yet these last are so tender, &c. that one half die without making any bags, or are hindred by some accident or other from making bags; whereas the *spiders* hatch of themselves, without any care, in the months of *August* and *September*, in fifteen or



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sixteen days after they are laid ; the old *spiders* that lay them dying soon after.

The young ones thus bred, live ten or twelve months without eating, and continue in the bags without growing, 'till the hot weather putting their viscid juices in motion, forces them to come forth, spin, and run about to seek for food.

Were there therefore a way found for breeding young *spiders* in rooms, they would without doubt furnish a much greater quantity of bags than *silk-worms* do.

For of seven or eight hundred young *spiders*, which Mr. *Bon* kept, scarce one died in a year ; whereas of one hundred *silk-worms*, not forty liv'd to make their bags.

Mr. *Bon* having order'd all the short-legg'd *spiders*, that could be found in the months of *August* and *September*, to be brought to him, he shut them up in paper coffins and pots, covering the pots with papers, which he prick'd full of pin-holes, as well as the coffins, to give them air. He fed them with flies, and found some time after, that the greatest part of them had made their bags.

He also found that *spiders bags*, in respect to their weight, afforded much more silk than those of the *silk-worms*.

As a proof of this, he says, that thirteen ounces yield near four ounces of clear silk, two ounces of which will make a pair of stockings ; whereas stockings of common silk weigh seven or eight ounces : nor is there any venom in the silk, nor even in the *spider*, as some have imagined.

Mr. *Reaumer*, being appointed by the Royal Academy to make a further examination into this new *silk-work*, rais'd several objections, and started several difficulties against it, which are to the purpose following :

I. That the natural fierceness of *spiders* renders them unfit to be bred and kept together ; four or five thousand being distributed into cells, fifty in some, one hundred or two hundred into others, the big ones kill'd and eat the less, so that in a short time there were scarce one or two left in a cell : and Mr. *Reaumer* ascribes the scarcity of *spiders* to this inclination of eating one another, considering the vast number of eggs they lay.

He also affirms, that the *spiders bag* is inferior to that of the *silk-worm*, both as to lustre and strength, and that it produces less matter to be manufactured.

That the thread of the *spiders web* will bear no more than the weight of two grains without breaking ; that of the bag will bear thirty-six. Therefore the latter in all probability is eighteen times thicker than the former ; yet it is weaker than that of the *silk-worm*, which will bear a weight of two drachms and a half.

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So that five threads of the *spider's bag* must be put together, to equal one thread of the *filk-worm's bag*.

And besides, he adds, that it is impossible these should be apply'd so justly over one another, as not to leave little vacant spaces between them, whence the light will not be reflected; and consequently a thread thus compounded, must fall short of the lustre of a solid thread.

And to this he adds, that the *spider's* thread cannot be wound off, as that of the *filk-worm* may, but must of necessity be carded; by which means being torn in pieces, its evenness, which contributes much to its lustre, will be destroyed.

Again he observes, that *spiders* furnish much less silk than *silkworms*. The largest bags of the latter weigh four grains; the smaller three grains, so that 2304 worms do produce a pound of silk.

The *spiders bags* do not weigh above one grain; yet when clear'd of their dust and filth, lose two thirds of their weight. Therefore the work of twelve *spiders* does but equal that of one *filk-worm*.

And besides, as the bags are the works of the females only, who spin them to deposite their eggs in, there must be kept 55,296 *spiders* to yield a pound of silk. Yet this will only hold of the best *spiders*; those large ones, commonly seen in gardens, &c. scarce yielding a twelfth part of the silk of the others: he shews, that 280 of these would not do more than one *filk-worm*, and 663,552 of them would scarce yield a pound of silk.

### *To take out SPOTS.*

Wash them with oil of *tartar per deliquium*, two or three times, and they will vanish, then wash with soap-suds, and lastly with fair warm water.

### *To take out Spots of grease.*

Rub them very well two or three times with oil of *turpentine*, and they will vanish away inconceivably; and then wash again with rectified spirits of wine.

### *To take out Spots of oil or grease out of white or red Silk.*

Rub the spots well with *aqua-fortis*, and afterwards rub them again with the glair of new-laid eggs; hang it in the sun to dry, and afterwards wash it with fair water, and press it well.

### *To take out Spots of Pitch, &c.*

First rub them well with hog's lard, or old thick oil, and repeat this two or three times; then soap them and wash them with fair water.

*Spirit of wine* is also good in this case.

### *To take Spots of Pitch, Tar, &c. out of cloth.*

Rub either common oil, or hog's lard well into the spots, and let it lie for twenty-four or forty-eight hours, then rub it

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well with your hands, and wring it, and lastly wash it clean with soap and water.

### *A powder to take out Spots.*

Take bone-ashes of sheeps-legs calcin'd white, reduce them to a fine powder; lay this warm upon spots or stains, 'till it begins to change colour; then take off that, and lay on fresh, and continue so doing 'till the spot is gone.

### *Another for the same.*

Take white, or wheaten-bread, just drawn out of the oven, lay one piece under, and another over the spot of a silk, and it will draw out the oil or grease.

### *Another for the same.*

Mix honey with glair of eggs and *sal-armoniac*, and lay them on the spot for some time, and afterwards wash it with fair water.

### *To take out Stains.*

Take half a pound of soap, and a quarter of a pound of fuller's earth, and one ounce of unslak'd lime; mill all together in fair water, and after a while lay it upon the stains.

### *Another way.*

Mix white *starch* and water together, and make it into a pretty stiff paste, with this cover the stains to the thickness of a shilling, and let it lie on for twenty-four hours; then rub it off, as you do dry dirt, and the stains will vanish.

### *To take out Spots of Ink.*

Wash them three or four times with juice of *lemon*, or with strong white-wine *vinegar*, and it will take them out; afterwards wash them with *Genoa soap*, and lastly with fair warm water.

### *To take Spots of Ink out of Silk.*

Take strong white-wine *vinegar* and hot *ashes*, rub them well upon the spots, and afterwards wash with soap and water, and the work will be done.

### *To take Spots of Ink out of Linnen or Woollen.*

Squeeze the juice of *lemons* upon the stains, and rub it in very well, let it dry, and repeat this three or four times, and afterwards wash it with fair water, and the ink or iron-moulds will be vanish'd.

SPRING is represented [in *Painting*, &c.] by a young man of an exact stature, clothed on one side in white, on the other in black, a pretty broad girdle set with stars, holds a ram under his arm, and a garland of several flowers in his left hand, two wings on his feet, one white, and the other black.

Youth denotes the spring and beginning of the year; just stature, because it is the equator, equal day and night; black and white, day and night; the girdle the equinoctial line; the ram, the sun's entrance into that sign; the wings, the swiftness of time.

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A SPY is represented [in *Painting*, &c.] by a man in a noble habit, hides most of his face with his hat, his clothes woven with eyes, ears, and tongues, a lanthorn in one hand, his feet winged, a spaniel by him on the ground, his nose in full scent after his game.

His clothes shew, that he practises amongst noblemen as well as vulgar; his face, that he ought to pass incognito, never discovering their designs; the eyes, &c. are the instruments they use to please the patrons; the lanthorn, that they spy night and day; the dog, their smelling out mens actions, and their inquisitiveness.

### STAINING LIQUORS.

*To make a deep Green staining water.*

Take juice of the greenest worts a pint, strain it through a cloth, and dissolve in it a sufficient quantity of purified *verdigrease*; mix them well together, and it will be a good colour.

*Another.* First stain the leather, parchment or paper with a *blue*, and let it dry; then lay on the yellow staining colour, and it will add much to the beauty of the *green*.

*A light staining Green.*

Take a quart of malt-wort, put into it two shells full of *florey*, and stir them well together; first stain with this, then upon this staining lay *yellow*, 'till it becomes *green*; the more you lay on of your yellow staining liquor, the better the *green* will be.

*To make a fine Blue staining water.*

First make a weak *lixivium* of *pot-ashes*, or use *lime-water*; put into it a sufficient quantity of *florey*, and a little *alum*; let it dissolve over the fire, keeping stirring it, and put into it some wood-ashes, and so you will have a fine blue.

*A weaker Blue staining water.*

Dissolve a good quantity of *florey blue*, and a little *alum*, in a sufficient quantity of fair water; and this will make a fainter colour than the former.

*A Blue staining water weaker than the last.*

To two quarts of pure well-water, put four shells full of *florey*; mix them well together, and lay them on thin, and this will be the faintest of the three.

STARCH is a dreg or sediment found at the bottom of vessels, in which the waste or refuse of wheat has been steep'd in water; of these dregs or sediment, after the bran has been separated from it, a sort of loaves are form'd, which being dry'd in a furnace or the sun, is broken into little pieces, and is the substance call'd *starch*.

The best *starch* is white, soft, and friable, easily reduc'd into powder.

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But the finest *starch* made by those that are curious, is not made as the common *starch-makers* do it, of the refuse of wheat, but with the best and finest of that grain, and is made as follows:

Having cleans'd the best and finest wheat well, they put it into vessels of clear water to ferment, and expose them to the sun in its greatest heat; and change the water twice a day, for eight, ten, or twelve days, according as the season is.

When they perceive that the grain will burst easily by the pressure of the fingers, they account it sufficiently fermented; then they put it handful by handful into a canvas bag, to separate the flower from the husks; to effect which, they rub it with the hand, and beat it on planks laid cross an empty vessel, which is to receive the flower.

As the vessel being fill'd with this liquor, there swims at the top a reddish water, which is to be carefully scummed off from time to time, and clear water put into the vessel; this being well stirr'd together, is strain'd through a sieve or cloth, and what remains behind is put into another vessel with fresh water, and expos'd to the sun, as before, for some time: and as the sediment settles and thickens at the bottom, the water is drain'd off four or five times by inclination of the vessel; but without passing it through the sieve.

That which remains at bottom is the *starch*, this is cut in pieces to get it out of the vessel; which being laid in the sun to dry, is afterwards laid up for use.

*Starch* is not only for family-uses in stiffening linnen, &c. but also in several trades, as perfumers, dyers, &c.

STATUARY is a branch of sculpture employ'd in making statues.

*Statuary* was at the first but very rude. *Dædalus* is said to be the inventor of statues, who liv'd not only before the destruction of *Troy*, but even before the *Argonauts*; but yet it is certain, there were statuaries before him; only he is also said to have been the first, who endeavour'd to give them action and motion, and make them appear as if they were alive.

Before his time, statues were made with their feet join'd together, they not aiming at expressing motion or action. He first set the feet of his statues at liberty, and gave them the attitudes of people walking and acting.

The first statues erected to their gods are said to have been made by the *Phœnicians*.

The *Greeks* exceeded the *Romans* in their statues, both in workmanship and fancy.

STATUES are defin'd to be a piece of sculpture, representing a human figure, in full *relievo*.

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But *statue* is yet more scientifically defin'd by *M. Daviler*, to be a representation of some person, distinguish'd by his birth, merit, or great actions, in high relievo and insulate; plac'd as an ornament in some fine building, or expos'd in a publick place to preserve the memory of him.

*Statues* are form'd with the chissel, of several matters, as stone, marble, plaister, &c.

They are also cast of several metals, as lead, brass, silver and gold. See the articles CASTING and FOUNDERY.

*Statues* are commonly distinguish'd into four kinds;

1. Those which are less than the life.
2. Those equal with the life.
3. Those that exceed the life; among which, those among the ancients, which did surpass the life once and an half, were of kings and emperors; and those double, the life, of heroes.
4. Those that exceeded the life, two or three times or more, and were call'd *Colossus's*, as that of *Rhodes*.

*Achillean* STATUES is a name given to those of heroes from *Achilles*.

*Allegorical* STATUES were such as, under human figures or other symbols, represented something of another kind; as age, element, some part of the earth, temperament, &c.

*Currule* STATUE, those where the persons are represented in chariots, drawn by either two or four horses.

*Divine* STATUES, were such as were consecrated to the gods, as *Apollo*, *Jupiter*, *Mars*, *Mercury*, &c. demi-gods or heroes, as *Hercules*, &c.

*Equestrian* STATUES were such as represented some illustrious person on horseback, as those of King *Charles I.* at *Charing-Cross*, and of King *Charles II.* at *Stocks-market*.

*Greek* STATUES, so are call'd antique naked figures; the *Greeks* representing their deities, wrestlers, &c. in the *Olympic* games, which last us'd to perform naked.

*Hydraulick* STATUES, such as are plac'd as ornaments on fountains, grottoes, &c. or that do the office of a *Fet d'eau*, pipe, &c. by any of its parts, or by any attribute it holds.

*Pedestrian* STATUES, are *statues* standing on foot, as that of King *Charles II.* on the *Royal-Exchange*.

*Roman* STATUES, such as are represented cloath'd after the *Roman* manner, and were different. As,

*Palludatæ statuae*, those of emperors with long gowns over their armour.

*Loricatæ statuae*, those of soldiers with cuirasses.

*Thoracatæ statuae*, those of captains and cavaliers with coats of arms.

*Togatæ statuae*, those of magistrates with long robes.

*Trabeatæ*

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*Trabeatæ statuae*, those of senators and augurs.

*Tunicatæ statuae*, those of persons clothed with a plain tunic.

*Stolatæ statuae*, those of women with long trains.

### CASTING of STATUES.

The first thing to be done towards casting of a *statue*, or any other piece of work in brass, is to make a model in *clay*, prepar'd by the potters, who mix sand amongst it, to prevent the model's cleaving or breaking in drying.

When the model is finish'd, a mould of plaister is put over it, while it is fresh, because the parts are apt to shrink with drying.

The workman begins at the bottom of the figure, which is made up of several pieces from the foot to the knee, according to the bigness of the model; for when the pieces are too big, the plaister is apt to chap.

Upon the first piece another is plac'd, always proportionable to the figure, and so continued from one to another as high as the shoulders, on which the head is put.

It is to be observ'd, that if it be a naked figure, whose pieces, which form the mould, being pretty big, may be peel'd off easily; there is no need of covering them with a [*chappe*] *shape*: but if the figure is with drapery, or accompanied with ornaments, which oblige the artificer to make abundance of little pieces, to be the more easily peel'd off, he must then make great *shapes*; that is, he must clothe all those little pieces with other plaister in great bits, to inclose the other; and oil the great, as well as the little joints, that they may not stick to one another.

*Shapes* are great pieces dispos'd in such a manner, that each of them inclose several little ones, to which are fix'd little rings of iron, to help peel them off the more easily; and to make them keep in the *shapes*, by means of little cords tyed to the rings, and put into the *shapes*, the great and little pieces are mark'd with cyphers, letters, and cuts, for the easier knowing them, and the better setting of them together.

When the *mould of plaister* is thus made, it must lie; and as soon as it is dry, and the sculptor is about to use it, if he is curious, he will not be contented with rubbing it with oil, but will heat all the parts of his model, and then fill them with wax; which he does, that the wax-work may be the more beautiful and more perfect: for when they are only rubb'd with oil, the waxen figure will commonly look mealy, because the wax always sinks in some part of the plaister; or rather the plaister sinks in part of the wax, which will still cause a more visible defect in the picture, and the cast will never be so fine.

The mould having been thus oil'd, or rather wax'd, when the workman is about to cast a figure in brass, he gathers all  
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the little pieces, that are in each great piece of the *shape*, which he presently oils all over with a pencil, then with another pencil he takes his compound wax, made as follows:

To six pound of wax put half a pound of *bog's grease*, and one pound of *Burgundy-pitch*, according to the season; for in summer the wax may be work'd up alone, the other drugs being only to render it the more pliant and manageable: of this sort of wax, either simple or compounded, the workman lays on to about the thickness of a silver penny, on all the parts of the mould; after which, he takes the same composition, and makes cakes of it of an equal thickness, according as he desires the *brass* should come, which is generally the fourth part of an inch.

These cakes he puts into the cavities of the moulds, and incorporates them with his fingers, with the wax that was laid on with the pencil, in such sort that they fill them all equally.

He then takes an iron grate, which should be three or four inches broader than the basis of the figure that is to be made, in which grate he raises once more bars of iron, turn'd according to the altitude of the figure; and pierc'd in several places to put rods through, of what length shall be thought necessary to bear up the *soul*, (or *nucleus*, as *Vitruvius* calls it, or *cœur*, i. e. heart, as it is call'd by the *French*) of the piece to be cast.

The ancients made all their souls (the first rough figures made by stone-cutters so call'd) of their figures of potters-earth, horse-dung and chaff, well beaten together; of which they form'd a figure like to that of the model.

When they had well furnish'd this *soul* with pieces of iron along and athwart, according to its altitude, they flead it; that is, they took off as much of its thickness as they design'd for the *brass*.

After they had let this *soul* dry, they covered it all around with pieces and bits of wax, which they took out of the *mould*, and dispos'd of them as will be shewn hereafter.

This way of forming *souls* of figures, is practis'd by some founders, especially for great brass figures, because the earth endures the force and violence of the fire better than plaister, which is commonly used in middling figures, and such as are cast in gold and silver.

However sculptors have seldom occasion to make figures of an excessive bigness, they use it also for those in *brass*, but mix brick-dust well pounded and sifted with it; and in working after this manner, they proceed thus:

They take the first lays of the mould fill'd with wax, as has been said, which they set from bottom to top on the grate; about that, a bar of iron that is to support the *soul*, tying them  
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fast together with cords, for fear the pieces should separate from each other, when the *soul* is to be made.

In order to make which, as soon as the first lay of the mould is disposed of, the rest are raised one after another; the sculptor pours fine plaister, mix'd with brick-dust sifted; for the brick-dust helps the plaister to resist the fire, and hinders its spreading.

When the first lay of the mould is fill'd, the second is done; and so the rest one after another, till they are all raised; and the *soul* is made of brick-dust and plaister, as high as the figure is to be.

The parts are raised up thus, piece by piece, that the *soul* may be the better manag'd; and to bear it up, iron rods are from time to time put through the principal parts before-mentioned.

When all the parts of the mould are set together, and all the cavities fill'd, the shapes and all the parts of the mould are clear'd; beginning at the top, and ending at the bottom: and then the figure appears intire, covering the soul which is within it.

The figure must be adjusted, and made like the model after which it was form'd; and to make it the more perfect, the workman may add to, or diminish, as is convenient, in all the parts, to give the more grace and expression to certain lines: for as to the attitudes and dispositions of the members, he cannot alter any thing without destroying the work.

When it is in its perfection, the casts and vents are laid; these *casts* are pipes of *wax*, made about an inch thick, for figures as big as the life, they being always to be proportioned to the bigness of the work, and even to the parts of the body, where they are plac'd.

The *vents* are also waxen pipes, but a little less; these pipes are made in moulds of plaister, of what size the artificer pleases, and then cut to about four or five inches in length.

Those that are to serve for the casts are plac'd one above another at six inches distance in a right line, the length of the figure, and sometimes nearer, when there are *draperies*, and there is occasion for a great deal of matter; when these pipes are apply'd to and soldered with the wax on the figure, so that the end which is not soldered is erected: there is a great pipe of equal bigness, fastened to the end of these little pipes from the top of the figure to the bottom. All these pipes great and small serve for the casting of the matter, and thus three or four are made about a figure according to its bigness and disposition; but at the same time that these pipes are made, to serve for the casts, the sculptor must apply over against and at the side that is on  
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the same line, and at four inches distance, less pipes to serve for *vents*, which are to be solder'd to the figure, and a great pipe which passes from top to bottom, like those of the casts. And because all the wax, as soon as it melts, runs out of the mould, as will be shewn hereafter, he is very careful to supply all the extremities of the parts; stretching out from the body of the figure with these pipes, as the arms, fingers, drapery and other things, from whence the wax must run.

All these pipes are hollow for their lightness only; otherwise they might be fill'd, but then they would be too heavy: a sufficient quantity of them must be plac'd about the figure, and the workman must take all possible care to put them in those places which he would have most supply'd with metal, and which will be most easily fill'd up. Those that are to serve for the face, should be much less than those that are to serve for the hands.

After having rang'd all these different pipes the whole depth of the figure; the great elevated pipes design'd for the *casts*, meet at the top two together, five or six inches above the figure, at a bowl or cup of wax four inches deep, and as many diameter, to the bottom of which they are fix'd.

This cup serves to receive the metal, which communicates it self at the same time to the two pipes.

Thus if there are four elevated pipes for *casts*, there are two sorts of cups more or less, as the artificer pleases, to carry the metal to all parts of the figure.

As to the parts which serve for vents, they run up to the height of the figure, higher than the others; for there is no need of their being join'd together, nor having their cups.

The waxen figure being thus prepar'd and furnish'd with *casts* and *vents*, the sculptor takes a composition made of *putty* and cement of *crucibles*, well cleans'd and pounded; which he tempers in an earthen pot to the consistence of a colour for painting, and a pretty bright one: then with a pencil he carefully covers all the figure with it, as also the pipes, both those for the casts and those for the vents.

This must be done several times, and the little cracks which will happen in this composition, must from time to time be fill'd.

When all the wax is well cover'd, he puts another sort of composition upon it with a pencil, that is thicker and has more substance, tho' made of the same ingredients before mention'd, mingled with some mould and horse-dung.

After six or seven of these *lays*, another thicker than any of the rest is laid on with the pencil, made of mould and horse-dung: that being dry, another is put on, and then another till  
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seven or eight: at last a thicker still is laid on with the hand, composed also of mould and horse-dung; and this is followed by another; but the workman must be sure that every lay is dry before another is laid on, and take care not to leave any part of the *naked* and *drapery*, but what shall be equally cover'd with every lay.

After this he takes several flat iron bars of the height of the figure, which at bottom is fasten'd to *hooks*, that should be at the side of the *grate*, on which the whole figure is plac'd; these bars must be at six inches diameter each from the other, and turn'd according to the *attitude* of the figure, in such sort that they may join to the mould, and coming from the top may meet in a kind of iron circle or bands of iron, which catch in the hooks of each bar.

Then the figure is girded from space to space, with other iron bands at the distance of seven or eight inches; these bars ought to be turn'd according to the disposition of the figure, and join'd with iron threads or wire to the *bars* that mount at top.

When they are all join'd together, and in a condition to bear up the mould, the artificer takes some heavy mould mixt with horse-dung and chaff, and covers all the mould and bars with it, insomuch that it appears to be only a mass of earth of about five inches thick: but it must be observ'd, that when a naked figure is to be cast, which is only to be placed on its two legs; the right of the legs and thighs must be better supply'd than that of the body, with earth; because when the mould begins to be seeth'd, the lowermost part being sooner heated than the middle of the body; before the soul, which is to the right of the belly and shoulders is seeth'd as it ought to be, the legs and thighs, which are not so big, will be burnt and consum'd with the fire before the trunk is hot through. And this caution is necessary in all the different pieces of work that can be made, if the workman would perform it with judgment, and prevent such ill accidents as may happen upon the like occasions.

When the mould is finish'd after the manner before directed, the artificer orders a hole to be dug four square, large enough to contain the figure; but it must have a wide space of at least a foot or foot and a half about it, and be deeper than the mould is high; for at the bottom it should have a sort of an oven, whose mouth must be on the outside for the putting in of the fire, and above that a strong iron grate, strongly supported by the arch and walls of the oven; which should be made of *free-stone* or *brick*, as well as the four sides of the hole from bottom to top.

After

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After the grate is plac'd on the oven at the bottom of the hole, the mould is let down with engines, and the necessary provision made for it; pans are set under the pipes, that serve for *casts* and *vents* to receive the wax that runs out of them; then the hole is cover'd by planks, and by lighting a moderate fire under the figure, that and all the place in which it is, is heated with a moderate heat, till the wax melts and runs out of the mould, none remaining behind; for if there was, it would cause a deformity in the figure, when the metal ran into it.

The mould must not be so hot as to make the wax boil, which might hinder its running out intirely.

When 'tis thought all the wax is melted, which may be known by the quantity which comes out, (for it must be weigh'd before it is put in;) the pans are taken away, and the mouths of the holes at which the wax ran out are cover'd with earth; all the void space between the mould and the walls are fill'd with pieces of bricks, which are thrown down softly and without ranging in order; and when that is done to the top, a good wood fire is made under the furnace. The flame being intermix'd with these pieces of brick, cannot ascend with violence or damnify the mould; but communicates a heat only in passing through those pieces of brick, which it heats, so that it grows red, as does also the mould.

After the fire has burnt about twenty-four hours, and it is perceived that the bricks and moulds are lighted from bottom to top, that fire is let out, and the moulds grow cold again; all the bricks being taken away that were about it. When the heat is quite gone, earth is thrown into the hole to fill up the vacancy left by the bricks, and as the earth is thrown down, 'tis trod upon and press'd against the mould, which therefore should not be hot; for if there remains any heat in it, 'twill imbibe the moisture, which will cause many inconveniences when the metal comes to be cast.

For the melting of metal, a stove must be made by the side of the hole in which the mould is: the area of this stove should be two or three inches higher than the top of the hole, that it may be sloping.

It should be built in the form of a furnace with good tile-shards and mould, bound with good iron hoops, and big enough for the intended work.

The stove being finish'd deep enough to contain the metal, two mouths are made above it, the one to throw the wood into, and the other to fan and give it air.

When the stove is very dry, a great wood-fire is made, into which the metal, with which the figure is to be cast, is thrown.

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There should be a third mouth at the side of the hole, which must reach to the area of the stove; this mouth must be well stopp'd with earth, while the metal is melting; but so that it may be opened when the workman pleases, and by a canal of earth it has communication with a sort of great basin made of mould, and plac'd above the figure; the middle of which basin is to answer exactly to the cups to which the *casts* are fix'd.

This basin is call'd by *French* workmen *Escheno*; it must be firm, and made of good pounded earth, very dry; for which end it is put into a coal fire, well dry'd and afterwards pounded.

And to prevent the metal from running into the cups, as soon as the oven is opened, there are men set to cover them with a long iron bar, thick at the end, and turn'd there like the cup: there are as many of these bars and these men, as there are cups; that is, one or two, according to the nature of the work.

When the metal is melted, the workmen open the iron door, or rather unstop the hole, which is at the right of the *canal*; this is done with a piece of iron at the end of a long pole. The metal running out, falls into the *Escheno*, where when it is come, the cover is taken off the *cups*, the metal enters into the mould, and the figure is form'd in an instant.

When the matter has thus fill'd the mould, 'tis left three or four days; then the earth that was put about it is taken off, by which means the mould grows quite cold; and when the workman finds it has no more heat in it, he breaks it, and discovers the figure in metal, with the lays and events or vents of the same metal with itself.

'Tis saw'd on the place, to clean and get the figure out the more easily: after that 'tis clean'd and scour'd with water, or with pieces of *fir* and other soft and spongy wood, rubbing the cavities of the drapery and other parts of the figure.

If it be a little figure, it is wash'd with *aqua-fortis*, and when that water has had its effect, it is wash'd with common water; and after it has been very well cleansed it is repair'd, if it wants it; but great figures are never repair'd at all.

The tools us'd in repairing are the *burin*, the round and flat graver, a little *chisel*, *bodkin*, and *reffloirs*, which are a sort of files.

When the figure is well cleans'd and repair'd, the *sculptor* colours it, if he pleases: there are some who do it with *oil* and *red-oker*, others make it turn green with vinegar; but in time the *brass* takes a varnish that bears upon the black.

Those who gild them do it two ways, either with *leaf-gold*, or temper'd and mix'd with *quick-silver*; which is the first and  
most

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most excellent way, and made use of in little figures: for this the workman takes one part of *gold*, and the other part of *quick-silver*, heats the figure, and puts on this composition, which whitens it; and re-heating it, the fire exhales the *quick-silver*, and the figure remains gilt.

The other way is used in great figures, and where persons would not be at much expence; the figure is scrap'd all over with little files and other tools to make it fresh and clear, then it is heated, and *leaf-gold* lay'd upon it, which is done four times.

BASS-RELIEFS are cast after the same manner as *statues*, that is, the mould is first fill'd with wax, after it is laid on as thick as is necessary; it is temper'd with plaister or earth, which is put on the wax, to keep it in one piece at its coming out of the mould, and to repair it the more easily; then it is cover'd as the mould of *statues*, with several *lays* of composition and earth; but the pipes for the *casts* and *esvents* or *vents* are put behind and on the edge of *bass-reliefs*, and some on the figure.

The rest is done after the same manner as is mention'd for *statues*.

As to the metal which is used, that depends upon the founder's choice; only he must observe this, that for one pound of wax there must be ten pound of metal, without allowance for waste, which may be considerable in large figures.

For fine statues the alloy of the metal is half *red-copper*, and the other half *yellow*. The *Egyptians*, who are said to be the inventors of this art, put two thirds of *yellow copper* and one third of *red*.

*Yellow copper* is made of *red copper* and *calamine*, an hundred of *calamine* increases forty per cent. *Calamine* is a stone that gives a yellow colour, and is found in *France* and the territory of *Liege*.

Good *red copper* ought to be beaten and not melted, before it is used in *statues*; neither should it have any alloy of *lead*.

*Red copper* is forg'd hot and cold; *yellow copper* when 'tis cold only, it breaks if hot.

There is a sort of metallick stone call'd *spelter*, which comes from *Egypt*, and gives *red copper* a finer yellow than *calamine*; but being scarcer and dearer than the latter, is rarely made use of.

For bell-metal, twenty pound of *tin* is put to one hundred pound of *copper*; and for pieces of ordnance, ten pound only: but this composition is not proper for figures, because 'tis too hard and crumbly.



## S T E

If the sculptor would make little figures of *brass*, he melts the wax, which he puts into the mould of *plaster*: the waxen figure is taken out of the mould in one piece and hollow, which cavity is fill'd with *plaster*, and left to dry, that it may serve for the *soul*; all the rest is done as for great figures.

Of CASTING figures, or making STATUES in STUCK.

Several *statues* are made in *stuck*. These figures are for the ornament of cielings, friezes and cornishes.

As to the making *figures*, the first thing is to form the soul of plaster or lime mortar, and a cement of tile-dust; putting bars of iron into those parts of the figure that stand in need of being borne up.

When the soul is form'd, it is then cover'd with *stuck* to work out the figure, for which the workman has his proper tools.

In the composition of *stuck*, one pound must be marble dust, and two thirds lime.

There is a sort of *stuck* made of plaster-stone manag'd as marble; instead of which sometimes alabaster is made use of.

As for ornaments of *bas-taille*, moulds are used, that they may be made more readily.

The artificer takes a mortar composed of lime and sand, or tile-dust for the first assay; and before it is quite dry, the *stuck* is temper'd to a composition that is neither too hard nor too soft: when 'tis laid on the place where the workman would make an ornament, he applies the mould, call'd by *French* artists *moulette*, made of plaster, or a composition of wax, rosin and brick-dust, more durable than plaster.

The mould must be first powder'd with marble powder, which being put upon the *stuck*, the artificer strikes it with a mallet, and the figure of the mould remains on the *stuck*; after this the work is clean'd, that it may appear the more smooth.

STEEL is a kind of iron refined and purified by fire with other ingredients, which renders it whiter, and its grain closer and finer.

*Steel* of all other metals is that susceptible of the greatest degree of hardness, when well temper'd; whence proceeds its great use in making tools and instruments of all kinds.

The true method of making *steel* has been greatly conceal'd, and the publick long abused by counterfeit methods.

*Agricola* gives us the following method, and *Kircher* affirms it is that practis'd in the island of *Ilva*, a place famous in all ages for the manufacture of good *steel*, from the time of the *Romans* to our own.

Heat a quantity of iron red-hot, cut it into small pieces, mix it with a sort of stone that easily melts. This mixture put by  
little

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little and little into a crucible, first fill'd with charcoal-dust and heated red-hot; when it is melted off, three or four, or more pieces of iron are to be put into the middle of it, and there boil'd for five or six hours with a strong fire.

This melted matter must be often stirr'd by the workman, that the pieces of iron may soak in the particles of the melted iron; which particles consume, and thin the grosser ones of the iron pieces, and are as it were a ferment to them, and make them tender.

Then one of the pieces is to be taken out of the fire, and put under the great hammer to be drawn out into bars, and wrought; and hot as it is plung'd into cold water.

Having been thus tempered, it is again work'd upon the anvil; then breaking it, it is considered, whether in any part it looks like iron, or whether it be wholly condensed and turn'd into *steel*.

*To soften STEEL for engraving upon.*

This is done with a *lixivium* of *oak-ashes* and unslak'd *lime*, by casting the *steel* into it, and letting it remain for fourteen days. Or *thus*; take the gall of an ox, the urine of a man, verjuice and juice of nettles, of each alike; mix them, then quench the *steel* red-hot therein, four or five times together, and it will become very soft.

THOMAS STEVENSON was bred up under *Aggas*, and became a good painter, not only in landskip, but also in figures, and architecture in distemper. He was especially eminent for scene-painting, tho' his works are not so much in esteem at this day, as when he lived.



STOLTZIUS. He engrav'd in the *Gothick* taste, and us'd this mark.

JOHN STONE was an extraordinary copier in the reigns of *Charles I.* and *II.* He was bred under *Cross*, and having the foundation of an exquisite draughtsman, performed several admirable copies, after many good copies in *England*. He did a great number of them, and they are reckoned amongst the finest of any *English* copyer. He did also some imitations after such masters, as he more particularly fancied; which performances of his are still in great repute, and received into the best collections amongst us. He spent thirty-seven years abroad in the study of his art, where he improved himself in several languages, being besides a man of some learning. He died in *London* the 24th of *August* 1653, and lies buried in *St. Martin's*.

STONES are hard, solid, mineral bodies, neither fusible nor malleable, form'd in the succession of time in the bowels or body of the earth.

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*As to the origin or formation of STONE*, M. *Tournefort*, on his return from his travels in the east, in the year 1702, propos'd to the *Royal Academy* at *Paris* a new theory.

After having curiously survey'd the famous labyrinth of *Crete*, and observ'd, that several Persons, having before engraven, or cut their names in the living rock, of which its walls were form'd; these letters, instead of being hollow, as they must have been at first (having been cut with the points of knives or such like instruments) were prominent, and stood out from the surface of the rock, like so many relievos; he concludes, that stones do grow, are organiz'd, and that they draw their nutritious juice from the earth. That this juice is first filtrated and prepared in their surface, which may be accounted as a kind of bark, and hence it must be convey'd to all the other parts.

This relievo-appearance of these engraven letters can be no otherwise accounted for, than by supposing the cavities of the letters fill'd up insensibly by a matter issuing out of the surface of the rock; and which issued even in greater abundance than was necessary for filling the cavities.

Thus is the wound made by the knife healed up, much after the same manner as the fracture of a broken bone is consolidated by a *callus*, form'd of the extravasated nutritious juice, which rises above the surface of the bone: and this resemblance seems to be the more just, in that, he says, the matter of the letters was found whitish, and the rock itself greyish.

Mr. *Tournefort* supports this opinion by similar *callus's*, apparently form'd in other *stones*, which re-unite them, after by accident they have been broken.

From these observations it will follow, that there are *stones*, which do grow in quarries, and of consequence that are fed and nourished; that the same juice, which nourishes them, serves to rejoin their parts when broken, just as in the bones of animals; and the branches of broken trees, when kept up by bandages; and in effect that they do vegetate.

PETER STOOP was a *Dutch* battle-painter, who came into *England* from *Portugal* with the late Queen-Dowager; his chief study was battles, huntings, and havens, which he performed for some time with good success; but after the arrival of *John Wyke* in *England*, who painted the same way, his pictures were not so much valued, by reason of the greater excellency of that master. This *Stoop* etched several prints of horses, as also the Queen-Dowager's publick entry. He died about fifty years ago.

STRADA, means *Vespasian Strada* of *Rome*.

*To dye Silk a STRAW colour.*

First alum and rinse the silk, and for every pound of it boil one pound of broom-flowers for a quarter of an hour; then pour it

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it into a tub, which must be in size proportionable to the quantity of the silk; then put to it an equal quantity of water, and after you have stirr'd the silk in it, fill the kettle again with water, and boil it a quarter of an hour. The silk being wrung out of the first suds, put them into the second; and if you see occasion, make a stronger yet, and stir the silks in it, 'till the colour is sufficiently heightened; then rinse it out, and hang it up to dry.

*To dye Stuff a Straw colour.*

First dye the goods yellow, and throw half a pint of urine into the dye; put in the goods, and work them about, as long as you think convenient.

ROBERT STREATER was born in the year 1624, and bred up to painting and designing under *du Moulin*. Being a person of great industry, as well as capacity, he arrived to a very eminent degree in divers branches of his art, especially in history, architecture, and perspective, wherein he excelled all of his time in *England*, and shewed himself a great master by the truth of his out-lines, and the learning of fore-shortning of his figures, as may be seen by his works. He was also excellent in landskip, having a mighty freedom of pencilling with equal invention, and was moreover remarkable for still life, insomuch that there are some of his fruit still to be seen, which are of the highest *Italian* gusto, both for pencilling, judgment, and composition. To do him but justice, he was the greatest and most universal painter that ever *England* bred, which we owe in some measure to his reading, he being reputed a very good historian, which no doubt contributed not a little to his perfection in that way of painting. Upon the restoration of King *Charles II.* he was made his Majesty's Serjeant-painter. He died, after having been first cut for the stone by a surgeon, whom King *Charles II.* sent for from *France*, for that purpose, in the year 1680, at fifty-six years of age, after he had lived in great reputation and esteem all his life. His principal works were at the theatre at *Oxford*; some cielings at *Whitehall*, which are now burnt; the battles of the giants with the gods at Sir *Robert Clayton's*; the pictures of *Moses* and *Aaron* in *St. Michael's Church* in *Cornhill*.

*To put a STREET in perspective.*

A bare sight of the figure may suffice to shew the method, which is exceeding easy.

All you have to do is to make a plan of simple squares the common way; and to take one, or two, or three of the squares for the breadth or length of each house, and in such breadths, &c. to set off the measures of the doors and windows, and to get the diminutions by drawing lines from the several measures to the point of distance; as here from B C D E and F.

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The first angle of each house may serve for a line of elevation, as the angle G in the first house.

If you require any cross streets, one, two, or three squares are to be left vacant, and nothing upon them, as here at H and I.

The figure underneath is to shew, that where houses are to be made to advance or fall back, you have only to put their elevations forwarder or backwarder on the plan of their squares.

Thus L advances a square further than K, and M farther than L, and so of the rest.

**STRENGTH** is represented [in *Painting*, &c.] by a woman in armour, her stature upright, big-boned, plump breasts, harsh hair, sparkling eyes, a spear in her hand, with an oak-branch, a shield on her arm with a lion and a wild boar.

All these denote *strength*, the oak-branch and armour shew strength of body and mind; the spear denotes superiority procured by strength; the lion and boar the strength of body and mind, the one acting with moderation, the boar runs headlong with fury.

**STRICTNESS** is represented [in *Painting*, &c.] by an old woman, surrounded with many wreaths of ivy, holding in each hand branches of the same.

The power of constraint is attributed to the ivy, signifying to bind and twist; it was a sad omen to the priests amongst the *Romans*, even to touch it, or name it, that they might not seem to be any way strait-laced, either in thought or deed.

**STUBBORNNESS** is represented [in *Painting*, &c.] by a woman all in black, a great deal of ivy growing about her habit, and a leaden cap on her head.

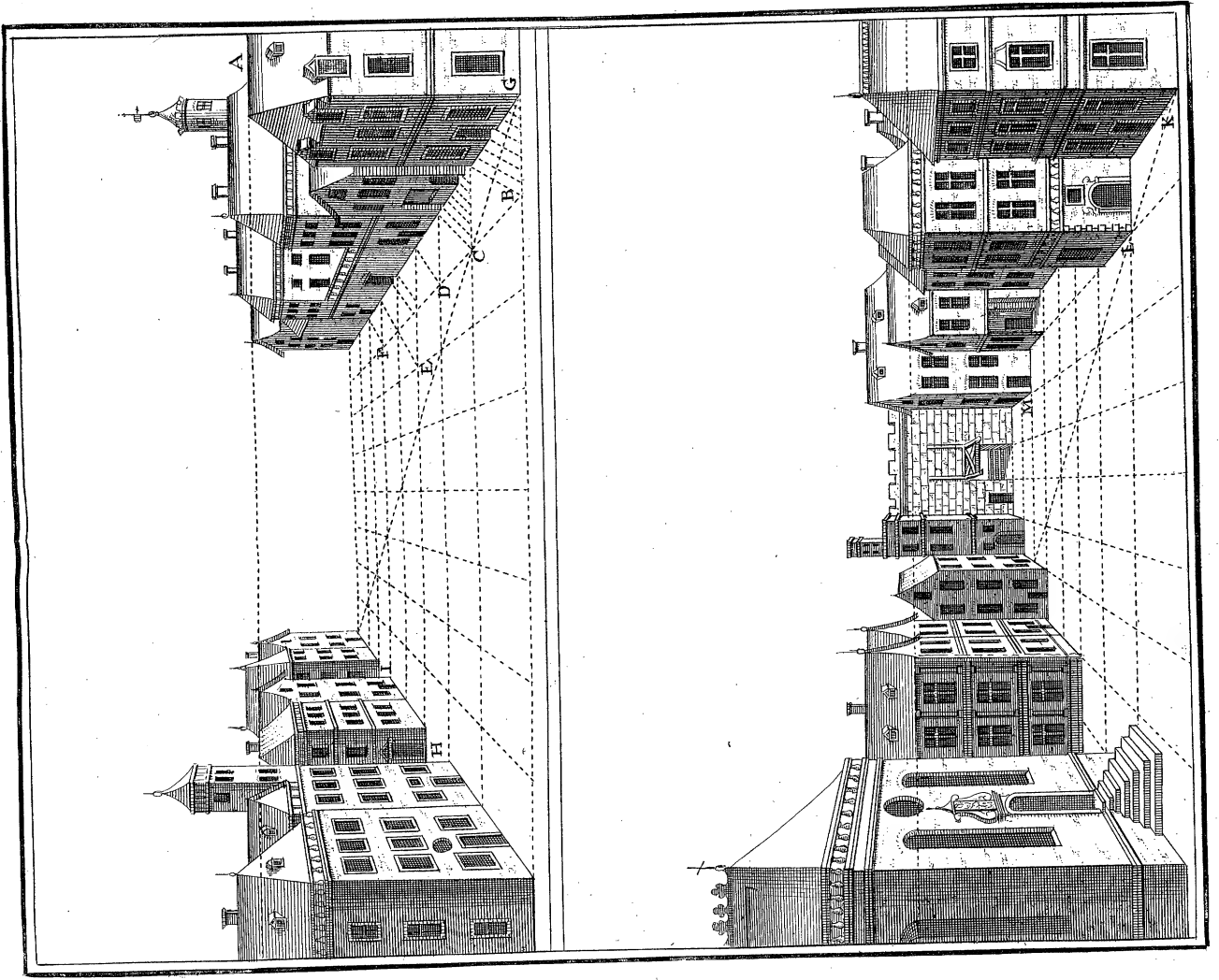
The black denoted firmness and ignorance, from whence proceeds *stubbornness*; the lead denotes ignorance and unwieldiness, the mother of the same; the ivy denotes, that the opinionativeness of obstinate men has the same effect upon them, as the ivy has, which makes the wall to decay and tumble down, where it takes root.

**STUCK**, Marble pulveriz'd, mix'd in a certain proportion with plaister; the whole well sifted, and work'd up with water, and used like common plaister. See **STATUES**.

**STUDY** is represented [in *Painting*, &c.] by a pale youth in a modest garb, sitting down, his left hand on a book lying open, on which he is very intent; a pen in his right, a lamp and a cock on each side.

Paleness denotes his pining away, his sitting his sedentary life, his being intent shews study to be a great application of mind, the pen his desire to leave something behind him to make him be remembered by others; the lamp, that students spend more in oil than wine, the cock vigilance.

STU-







## S U L

STUPIDITY is represented [in *Painting*, &c.] by a woman, laying her hand upon the head of a goat, with an eringo-branch in her mouth, a *Narcissus* flower in her left hand, crowned with the same.

The goat denotes *stupidity*. *Aristotle* says, they that have eyes, resembling the colour of wine, are blockheads, because they resemble the goat's eyes; the *Narcissus* is derived from the *Greek Narche* stupid; and *Narcissus* so in love with himself grew stupid, and was drowned: the *eringo* is a stupifying plant.

SUBLIMATE is a chymical preparation, the basis whereof is *mercury* or *quicksilver*.

There are two kinds of *sublimate*, *corrosive* and *sweet*.

The *corrosive sublimate* is prepar'd of *mercury*, either crude or reviv'd from *cinnabar*, together with spirit of *nitre* and *vitriol*, lixiviated to a whiteness, and sea-salt decrepitated, the whole reduc'd into a white brilliant mass by *sublimation*.

It is white, and full of shining crystalline veins.

It cannot act, unless it find some humidity to act upon, and is then a violent poison.

*To prove the goodness of Sublimate.*

1. Cast it on the coals, and if it is good, it will burn of a blue flame; but if it make any other colour, it is naught, and has *arsenick* in it.

2. Or thus: Take the *sublimate*, and drop thereon a few drops of *oleum tartari per deliquium*; if it turns the substance of a deep yellow, reddish, or orange tawney, it is good; but if not, or it be black, there is *arsenick* in it.

SUCCOUR is represented [in *Painting*, &c.] by a man in armour, with a drawn sword in one hand, and an oaken branch and acorns in the other.

Armed, to help the weak and necessitous; the branch to help in time of scarcity and famine with the acorns, for anciently men had recourse to that fruit in time of need, it being dedicated to *Jupiter*, who succours every one.

EUSTACE LE SUEUR, born in the year 1617, a scholar of *Vouet's*, liv'd at *Paris*, excell'd in history; died in the year 1696, aged 80 years.

SUFFERING is represented [in *Painting*, &c.] by a woman that looks to be pretty old, seeming to support a huge stone with this motto, *Rebus me servo secundis*.

To suffer is, as it were to bear some weight, not taking notice of its weight, aiming at some good, and so men ought to bear fatigues for the love of virtue; the motto denotes the end of suffering, which is rest and quietness, because the hope of probable benefits make us endure all fatigues willingly.

SULPHUR is a fat, unctuous, mineral substance, fusible and inflammable by fire, and not dissoluble or capable of being mingled with water.

## S U L

*Sulphurs* are distinguish'd into *solid* and *fluid*.

The *solid sulphurs* are *common sulphur*, or *sulphur* properly so call'd, *arsenic* and *amber*.

The *liquid sulphurs* are *asphaltum*, *pisasphaltum*, *bitumen*, *petroleum*, *naptba*, and *oleum terræ*, &c.

*Sulphur*, properly so call'd, or *brimstone*, is of three kinds; viz. *vivum*, *mineral*, and *common sulphur*.

*Sulphur vivum* is thus call'd, as being such as it is taken out of the mine; it is a kind of greyish argillous clay, which easily takes fire; and in burning emits a strong sulphureous smell, and by reason of its colour, it is sometimes call'd *grey sulphur*.

It is chiefly brought from *Sicily*, and is not much us'd, except in some Galenical compositions; and to sulphur wine, to make it keep in carriage.

The best is soft, smooth, friable, and shining, of a mouse-colour, and not too full of smell.

*Mineral sulphur*, call'd also *yellow sulphur*, is a kind of hard, earthy *bitumen*, of a shining yellow colour, a strong stinking smell, easily taking fire, and dissolving.

'Tis found in great quantities in the neighbourhood of *Vulcano's*, or burning mountains; as *Ætna*, *Vesuvius*, &c. and it is likewise found in its particular mines; and we have very good from several parts of *Italy* and *Switzerland*, tho' the best is that of *Quitto* and *Nicaragua* in *America*.

'Tis from this *sulphur*, that the common *sulphur* us'd in gun-powder, and on divers other occasions is drawn, by means of fire and whale-oil; which dissolving it, 'tis pour'd into moulds, and thus form'd into those cylinders we find it in.

This *common sulphur* is either better or worse, according to the refinery it comes from. That of *Holland* has for a long time had the vogue; that of *Venice* is reckon'd the second; and that of *Marseilles* is allow'd the third.

Besides the use of *sulphur* in physick or chymistry, and the composition of gun-powder; it is us'd for whitening silks and woollen stuffs, for which purpose the vapour is contriv'd to be receiv'd by them.

Its vapour also whitens red roses; and even young rooks, taken out of the nest, and expos'd thereto, become perfectly white. It has the same effect on gold, which may be restor'd to its colour, by boiling it in water with *tartar*.

Metals are suppos'd to consist of two essential parts or principles, *mercury* as the basis or metallic matter, and *sulphur* as the binder or cement, which fixes the fluid *mercury* into a coherent malleable mass.

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To make SULPHUR SATURNI, to be used in pastes for all artificial gems.

*Isaac Hollandus* has very well shewn us the way to imitate the colour of all precious stones.

The way to make his sulphur for it, is this;

Take *ceruss*, or *white lead*, ground very small, put it into a great glass body, and pour thereon as much distilled vinegar as will rise a palm above it; and as the vinegar will rise and swell very much at first pouring on, you must take care to pour it on gently, 'till all the fury and noise be gone: Then let this body on a hot furnace in sand, there to evaporate the eighth part of it away; then let it cool, and decant off the remainder of the vinegar, which will be well coloured, and full of salt, which keep in another glass vessel. Then pour fresh distilled vinegar on the remainder of the *ceruss*; set it again on the furnace to evaporate as before, and decant off that vinegar as the former. Reiterate this process of putting fresh vinegar on your matter, and evaporating it, and decanting it off 'till it have no further colour, nor sweetness; which commonly happens about the sixth time. Take all your coloured vinegars, and carefully filtre them off; then take one or more glass cucurbits, and evaporate all the vinegars over a gentle fire, and you'll find remaining at bottom a salt of *Saturn* of lead very white.

Then take a glass matrafs, lute it well down to the middle of the body, and put your salt of lead in it, and put it on a sand-furnace over a gentle fire for the space of twenty-four hours, covering it with sand up to the neck. Then take out your salt, which ought to be as red as *cinnabar*, and grind it fine on a marble: if it be yellow, you must put it on the fire again for twenty-four hours longer, and take care it don't melt, for then all is spoiled.

When your salt of lead is perfect, as we have shewn, you must put it again into a glass cucurbit, and pour distill'd vinegar on it as before, and decant it off, when it is enough coloured; and put fresh vinegar on the remaining salt, and continue 'till all the salt be dissolved, and the *faeces* and dregs all separated. After that, put all these coloured vinegars into glass vessels, and let them stand six days to settle, then filtre them carefully, and separate all the *faeces*. Then put all these filtered vinegars into a great glass body to evaporate as before, and you'll find at the bottom a very white salt of lead sweet as sugar.

This salt, being well-dried, dissolve it afresh in common water, and let it stand six days, that all the *faeces* may precipitate to the bottom. Then filtre that water, and evaporate it in a glass cucurbit over a gentle fire, as we have said, and you'll have at bottom

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bottom a salt more white than snow, and as sweet as sugar. Reiterate this method of dissolving in fair water, filtering and evaporating 'till three times; then take your *saccharum Saturni*, and put it in a glass body over a sand-furnace over a temperate heat, where leave it for several days without augmenting the fire; then it will become redder than *cinnabar*, and give a calx finer than wheaten flower.

It is this calx thus purified from all its terrestreity, which is call'd *sulphur of Saturn*. Now in making paste for emerald, sapphire, granat, topaz, chrysolite, blue, and other colours, you must employ it instead of minium in the same doses as we have shewn elsewhere: observing all we have noted in the subject of baking, and proceeding; then you'll have stones of different colours, far fairer than the natural ones, and which can scarcely be distinguished from them.

The paste, made with this sulphur, will not have that grease and yellowness, which others have; and will not be so apt to spot by the breath: upon this account, the curious will have no cause to repent the trouble of making this sulphur, tho' the work be very laborious.

SUMACH, a drug us'd in dying *green*, as also in the preparation of black *Morocco* and other leather.

It consists of the leaves and young branches of a shrub, not unlike the little service-tree; the leaves are longish, pointed, and hairy: the flowers grow in clusters, and are red like our roses. Its fruit is a kind of grape, of a very astringent quality; and its seed almost oval, and inclos'd within a *capsula* of the like figure.

SUMMER SOLSTICE is represented [in *Painting*, &c.] by a young man naked, wings on his feet, seems to retire backward; ears of corn on his head, with a circle, on which are nine stars, in the midst of which is *Cancer*, a globe in one hand, the fourth part of which is darkened, and the rest illuminated; a crab-fish in the other, four wings party-coloured on his feet.

Twenty-five years denote the fourth part of man's life, as the sun going from *Aries* to *Cancer* has finished the fourth part of his course; naked, shews excessive heat; backward, to shew the sun retires when at the equinoctial; the stars on his head, because then the sun stands perpendicular over us, and makes the solstice; the wings shew the continual circular motion; the colours denote the difference of night and day at that time.

*The SUN-FLOWER to paint*: cover it with *masticote* and *gambooge*, and finish with *gall-stone* and *bistre*.

Lay the green on with *verditer* and *masticote*, and shade it with bladder green.

SUPERSTITION is represented [in *Painting*, &c.] by an old woman with a nightingale on her head, an owl and a crow on

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on each side below; in her left hand a lighted candle, in the right an orb, with the planets on which she gazes very timorous.

Old, because such persons are most superstitious; the nightingale is taken for a bad omen, which by her singing in the night threatens bad luck, as does the owl; the candle denotes the ardent zeal superstitious persons think they have, they fear, but do not love God; the stars, the vain fear of things above, and constellations, and doing things at one time, rather than at another, from whence astrology had its rise, and from whence *superstition* flows.

SUSTENANCE is represented [in *Painting*, &c.] by a lady in a robe of cloth of gold; in her right hand a gleanings of corn; in her left a bunch of grapes, with milk spouting out of her turgid breasts. These allude to the bounty of nature, that when we are infants, we are nourished with milk; when grown to maturity, with bread and wine.

SWIFTNESS is represented [in *Painting*, &c.] by a young woman in a loose green habit, in a running posture, an arrow in one hand, wings on her shoulders, and on her heels, like those with which *Mercury* (the swift messenger of the gods) is painted; all these shew great swiftness.

JOHN SYBRECHT was a landskip-painter, born at *Antwerp*, and brought up under his father. He was a close imitator of nature in all his landskips; and in his younger days went upon the *Rhine*, and other adjacent places, where he drew several pleasant views in water-colours.

The Duke of *Buckingham*, in his way home from *France*, passing through the *Netherlands*, staid some time at *Antwerp*, where meeting with several of this master's works in landskip, he was so well pleased with them, that he invited him over to *England*, and made him his painter, and he did a great number of those pictures for him at *Clivedon-House*.

He also performed several pieces for the nobility and gentry of *England*, amongst whom he was for some time in vogue.

He also drew several sorts of cattle with good success, which he commonly placed in his landskips.

He died about thirty years ago in *London*, and lies buried in *St. James's Church*, being 73 years old.

SYMMETRY is represented [in *Painting*, &c.] by a woman at perfect age, naked, of singular beauty, and all her members are uniform, and correspond with her beauty; a piece of cloth goes across her, all spangled with stars; a curious piece of architecture by her, in one hand is a plumb-line, and compasses in the other, going to measure the stature of *Venus*.

Her age shews her arrived at her just proportion; naked, to shew

## S Y M

shew that all the parts ought to correspond in true proportions; the instruments are to measure the uniformity.

**SYMPATHETICK Inks** are such as can be made to appear and disappear very suddenly, by the application of something that seems to work by *sympathy*.

Take unslak'd lime two or three parts, and one of yellow orpiment; reduce them to powder, and mix them, adding to them fifteen or sixteen times as much water, as you have orpiment; put them into a glass bottle or vial, and stop them with a cork and bladder, and set it in warm embers, shaking the vial now and then for five hours, and then warily decant the clear part, or rather filtrate it.

In the mean time, burn a piece of cork thoroughly; and when it is well inflamed, quench it in common water, or rather in *brandy*. It being thus reduc'd to a friable coal, grind it in fair water, in which gum has been dissolv'd, and it will make a liquor as black as *common ink*.

While this is preparing, dissolve a quantity of *red lead* in three times as much distill'd or strong *vinegar* over warm embers, or of *saccharum Saturni* in three times the quantity of water for three or four hours, or 'till the liquor has a sweet taste. This liquor will be as clear as common water.

Having prepar'd the *inks* as before directed, write what you would write on paper with this last liquor, dry it, and nothing will appear.

Over the place write what you please with the second liquor, and it will appear as *common ink*. When it is dry, dip a piece of rag or sponge in the first liquor, rub it over the written place, and the black writing will vanish; and that wrote with the *invisible ink* will appear black and legible.

Again, take a book four or five inches thick, and on the first leaf write any thing with the last liquor; turn to the other end of the book, and rub therewith a rag dipt in the first liquor, on that part, as near as you can guess, opposite to the writing; and leave also the rag there, clapping a paper over it. Then shutting the book nimbly, strike four or five smart strokes thereon with your hand, and turning the other side uppermost, clap it into a press, or lay it under a good weight for a quarter of an hour, or half that time; then will the writing, done with the *invisible ink*, be found legible.

2. Dissolve white or green *vitriol* in water, and writing with the solution, nothing will appear.

Boil galls in water, and dip a linnen rag in the decoction, and with it rub the place written before, and it will appear black and legible.

Rub

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Rub it over again with spirit of *vitriol*, or its oil, and the writing will disappear again: rub it over again with oil of *tar-tar per deliquium*, and the letters will appear again, but of a yellow colour.

### T.

**T**ABBYING, is the passing a silk or stuff under a calender, the rolls of which are made of iron or copper, variously engraven, which bearing unequally on the stuff, render the surface thereof unequal, so as to reflect the rays of light indifferently, making the representation of waves thereon, as on a *tabby*.

It is perform'd without the addition of any water or dye; and furnishes the modern philosophers with a strong proof, that colours are nothing but appearances.

**TACAMACHA,** } Is a sort of resinous gum, which distils  
**TACAMAHACA,** } from the trunk of a very large tree growing in *New Spain*, but most plentifully in the island of *Madagascar*.

There are of it three different sorts; the *sublime* call'd *Tacamacha* in the pod, *Tacamacha* in the mass, and *Tacamacha* in tears.

The first is the natural resin, as it falls of itself, without making any incision in the tree. To be good, it should be dry, reddish, transparent, of a bitter taste, and a strong smell, resembling that of lavender. It is gathered by the islanders in little gourds, cut in two, and covered with a palm leaf.

The *Tacamacha* in tears and in the mass, are those which flow from the tree out of incisions: it ought to be chosen dry and clear, and the smell much the same with the first sort.

This gum is us'd in some varnishes.

### COLOURS for TAFFETY, CLOTH, and LEATHER.

*Taffeties* are painted much after the same manner as *sattins* are; therefore take such as are fit for the purpose, and lay them one by another, and shadow them with others.

*Cloth* is done after the same manner as *sattin*, except that there must not be given to cloth so sudden a shining gloss.

*Cloth of gold* is imitated with *brown oker* and liquid gold; water and heighten upon the same with small gold strokes.

For *buff*, temper up *yellow oker* with white lead; and where it should be dark, by degrees mix a little umber with it, and afterwards size it over with umber and sea-coal black.

For *black leather*, use *lamp-black*, and shadow it with *white lead*.

For *white leather* use *white lead*, and shadow it with *ivory-black*.

For



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For *yellow leather* use *masticote* and *yellow oker*, and shadow it with *umber*.

TALC } Is a shining, flaky, or scaly, fissile stone, which may  
TALK } be easily separated into transparent leaves or scales.

It was formerly found in mines in *Cyprus*, *Cappadocia*, *Arabia*, and *Africa*; but at present it is chiefly dug out of the *Alps* and *Appennines*, several mountains in *Germany*, and also in *England*, particularly in *Northamptonshire*.

It is usually distinguish'd into two kinds; the *white talc* of *Venice*, and the *red* of *Muscovy*.

That from *Venice* is accounted the best: it is brought to us in large, green, shining stones; but when it is wrought, becomes white and exceeding transparent.

It is us'd to be put before paintings in miniature, and crayons, to preserve them, it being parted into thin lamina or slices.

The *talc* brought from *Muscovy* is found in quarries either there or in *Persia*, is reddish when in the stone, tho' it seldom comes to us otherwise than in leaves, which are hard, smooth, polish'd, and exceeding transparent, and is us'd as the other to put before paintings, and also for making lanthorns.

TAN, the bark of a young oak beaten small, and us'd by curriers for the tanning or dressing of leather.

TANNER, one who dresses hides, &c. by *tanning*, so as to make leather of them: he uses much bark in the way of his employment, concerning which there are several terms.

1. *Scutching the bark*, which is the cleansing it from moss, and the rough crusty outward rind, with an instrument call'd a scutching-knife.

2. *Hewing the bark*, that is, chopping it into small pieces.

3. *Grinding it*, by putting it under the mill to grind it small.

4. *Drying the bark*, which is drying it, that it may grind.

5. *Setting down*. 6. *Stretching*. 7. *Laying down*.

TANNERS MILL, an engine made use of by *tanners* for the grinding and crushing their bark; being a large, round, wooden trough, with a pretty big stone set on edge, or turning part, with sharp strong knives, leaded into the stone; which stone being turned in the trough, causes the irons to cut the bark very small.

TANNING ENGINE. A convenient instrument for this purpose may be made, of a long, square, wooden block, and some pieces of iron to be fasten'd on, and us'd about it, viz. an *anvil*, an *hammer*, an iron holding the wood to be bruised and cut, and a *knife* to cut the same.

Now oak or elm is accounted best for the block; the dimensions whereof may be as follows: the length of the block  
about

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about four foot, the breadth fifteen or sixteen inches, and the depth eight or ten inches: there are to be also iron pieces, and a square hollow, to receive a plate of iron, serving for an *anvil*, for beating and bruising the *tanning* stuff upon; which *anvil* may be about four inches deep, nine inches broad, and twelve inches long. Then there is the iron for clasping and holding the materials to be bruised and cut; which iron must lie cross the engine, about the middle of the said piece of timber, and may be about three inches broad: it is to have two hooks at one end, which are turn'd upwards, and must be hook'd into the loops of the two hinges, that are let in and fasten'd to the side of the engine, in such manner that this clasping piece may have liberty to be raised a little for putting the *tanning* stuff under it.

At the other side, there is to be a single hook, likewise turn'd upwards to hang a weight upon, while the stuff is bruising upon the anvil, or cutting by the knife. The bottom serves to take up this piece by, and all on the other side of the block are the places for the four feet to set this engine upon, which are of a convenient height to work upon it.

The next thing to be provided is a *hammer*, for beating and bruising the stuff, which may be of the weight of six pounds, and have the head about three inches square to work with both hands; but to work with one hand, or for a youth to use, let it be about three pounds weight and two inches square. The surface of one end of these hammers will be best to be smooth; but that of the other end, the better to enter into the stuff, rough or with an edge or point: they must be well steel'd at both ends; and their handles may be about a foot long.

There must be also a *knife* to cut the stuff, which must be eight or nine inches broad, and near as much in length, made like a *tobacco* knife with a handle to work; this knife should be fasten'd to the block at the two opposite sides, that are to be hollow'd with two grooves, and this fastening is to be perform'd by two pieces of iron, to be fitted into the said grooves, to hold and guide the knife in working. One piece is to be fasten'd to the end of the *knife* by a pin passing through three holes, and this end is to be screw'd into the groove by a pair of screw-pins; then another piece being fork'd, is to receive the other end of the *knife*, the solid square part of which, is to be fix'd in the groove that is underneath, by two iron plates, under which, it must run in the said groove, so as that it may be slipp'd out from under it, and laid by when the engine is not used; at which time also the piece of the other end may be unscrew'd and laid up.

The

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The two long squares upon one end of the block are two iron plates to be fasten'd, where the *knife* moving in a fit cavity is to cut the bruised stuff between them; and of these plates, that which lies next the end is to be laid a little lower, the block being there pared accordingly, that so the stuff may fall off from the end of the engine quicker, as the left hand furnishes the knife with the materials to be bruised, while the right hand is cutting them: let the hollow place where the knife cuts, be as near as may be so big only, that the knife may easily fall and rise; and let the block be hollow'd under the cutting-hole, and sloped off at that end, for the stuff to fall off as the knife cuts it.

**TANNING of *Leather*.** As for the best and cheapest way of managing this affair, it ought to be that every part of the oak-tree, of what age or growth soever, and all oaken coppice-wood of any age or size, being cut and procur'd in barking time, will tan all sorts of leather, as well at least as bark alone; this material therefore being got in its proper season, it must be very well dry'd in the sun, and more than bark; then housed dry, and kept dry for use.

When it is to be used, the greater wood may be shaved small or cleft fit for the engine, and the smaller bruised, and cut small by the engine; which being done, it must be dry'd again very well upon a kiln, and then ground, as tanners usually do their bark.

Such wood as is to be made use of presently after it is got, will require the better and more drying upon the kiln, otherwise it will blacken and spoil all the leather.

Where oak is scarce, thorns may indifferently supply that scarcity.

Now all these ingredients will tan better than bark alone, and that with far less charge; and by this means the felling of timber, when the sap is up, may be prevented; which when it is done, causes the out-sides of the trees to rot and grow worm-eaten; whereas, if the trees had been fell'd in winter, when the sap was down, they would have been all heart, (as it is call'd) and not subject to worms.

**TANNING** is the preparing of hides or skins of animals in a pit with *tan* and water, after the hair has been first taken off, by putting the skins into lime-water.

*The method of tanning the hides of oxen, cows, horses, &c.*

If the skins are intended to be kept, after they have been flead off the carcass they are salted with *sea-salt* and *alum*, or with a kind of *salt-petre* call'd *natron*.

But if they are not design'd for keeping, the salting is omitted, as being of no use; but to prevent the hide from

cor-

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corrupting, before it can conveniently be carried to the *tann*-house.

Whether the hides have been salted or not, the first thing the *tanner* does, is to take off the horns, ears, and tail; which being done, he throws them into running water for about thirty hours to cleanse them from the blood, and other impurities that adhere to the inside.

After this, they are laid over night in a *lime*-pit that has been used; out of which, they are taken and left to drain three or four days on the edge of a pit.

This first and slightest preparation being over, it is returned into a strong *lime*-pit for two days, and then taken out four more; and thus for six weeks alternately, taken out and put in twice a week.

At the end of six weeks they are put into a fresh pit, where they continue eight days, and are taken out for so many; and this is done alternately for twelve or eighteen months, according to the strength of the *leather* or the weather: for in great heats they put in fresh *lime* twice a week; and in frost they sometimes don't meddle with them for three months. Every fresh *lime*-pit they throw them into, is stronger and stronger.

At four, five, or six weeks end, the hair is scrap'd off on a wooden leg or horse, with a kind of knife for that purpose; and after a year or eighteen months, the hair being perfectly got off, they are wash'd in a river, and the flesh is par'd off on the leg with a kind of cutting-knife, and the hides are rubb'd briskly with a sort of whetstone, to take off any remains of flesh or filth on the hair side.

This being done, they put the skin into the *tann*, and cover it over with *tann*, as 'tis stretch'd in the pit, and water let in upon it: if the skin be strong, five coverings of *tann* will be requisite; but three or four may suffice for weaker.

When the skin has not been kept long enough in *lime* or the *tann*-pit, upon cleaving it in the middle, a whitish streak is seen, call'd the horn or crudity of the skin; and this is the reason why the soles of boots, shoes, &c. stretch so easily and take in water.

When the hides are sufficiently *tann'd*, they are taken out of the pit to be dry'd, by hanging in the air: then they clean the *tann* off of them, and put them into a place neither too dry nor too moist; stretching them well over one another with a weight at top, to keep them tight and streight; and then they are fit for sale, under the denomination of bend *leather*.

This is the method of *tanning* the hides of oxen or bullocks: the hides of cows, or horses, and calves are tann'd much after

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the same manner as oxen; excepting that the former are only kept four months in the *lime*-pit, and that they must have a preparation before they are put into the *tan*-pit as follows:

The skins being put into a wooden vat or tub, cold water is pour'd to them; in which they are kept stirring while some other water is warming in a kettle, which water, when it is a little more than luke-warm, is pour'd gently into the vat, and a basket of *tan* is thrown upon it; during which time, the skins are still kept turning, that the water and *tan* may not burn them.

After an hour they are taken out, and cast for a day in cold water; then return'd into the former vat, and the same water they were in before; in which, they are let lie for eight days; which being expir'd, they are put in the *tan*-pit, and three coverings of *tan* given them; the first of which lasts five weeks, the second six, and the third two months.

The rest of the process, is in all respects the same as that above deliver'd.

**TAPESTRY** is a curious kind of manufacture, serving to adorn a chamber or other apartment by hanging or covering the walls thereof.

It is a kind of woven hangings; of wool and silk frequently raised and enriched with gold and silver, representing figures of men, animals, landscapes, histories, &c.

The invention of *tapestry* seems to have come to us from the *Levant*, and this seems the more probable, in that the workmen concern'd in it were call'd, at least in *France*, *Sarrasins* or *Sarrasinois*.

It is supposed that the *English* and *Flemish*, who were the first that excelled in making *tapestry* might bring the art with them from some of the *croisades* or expeditions against the *Sarrasins*.

Be this as it will, it is certain, those two nations, especially the *English*, were the first who set on foot this noble and rich manufacture in *Europe*, now one of the finest ornaments of palaces, basilicks, churches, &c.

And therefore if they may not be allow'd to be the inventors, they have at least the glory of being the restorers of this so curious and admirable art, as gives a kind of life to wools and silks in no respect inferior to the paintings of the best masters.

It was late before the *French* apply'd themselves to *tapestry*. The first establishment of that kind was under *Henry IV.* in the year 1607, in the *Fauxbourg* of *St. Michael*: but this fell with the death of that Prince. This manufacture was reviv'd in the  
time

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time of *Louis XIV.* by the care and address of the great *Monsieur Colbert*, to whom the establishment of the *Gobelins* is owing; a royal *tapestry* manufacture, which has produc'd works in this kind, scarce inferior to the finest *English* or *Flemish tapestry*; either as to the designs, the colours, or the firmness.

*Tapestry* work is distinguish'd by the workmen into two kinds, viz. that of the *high* and that of the *low warp*; tho' the difference is rather in the manner of working than in the work itself; which is in effect the same in both; only the looms and consequently the *warps* are differently situated.

Those of the *low warp* being plac'd flat and parallel to the *Horizon*, and those on the contrary of the *high warp* erected perpendicularly.

The *English* antiently excell'd all the world in the *tapestry* of the *high warp*, and they still retain their former reputation; tho' with some little change; their *low warps* are still admir'd; but as for the *high ones*, they are quite laid aside by the *French*.

The *French* have three considerable *Tapestry*-manufactures besides that of the *Gobelins*; the first at *Aubusson* in *Auvergne*, the second is at *Felletin* in the *Upper Marche*, and the third at *Beauvais*.

They were all equally establish'd for the *high* and the *low warp*; but they have all laid aside the *high warp*, excepting the *Gobelins*.

There are admirable *low warps* in *Flanders*, generally exceeding those of *France*; the chief and almost only *Flemish* manufactures are at *Brussels*, *Antwerp*, *Oudenard*, *Lisle*, *Tournay*, *Bruges*, and *Valenciennes*.

At *Brussels* and *Antwerp* they succeed both in *human figures*, in *animals* and *landskips*; and that both with regard to the designs and the workmanship.

At *Oudenard*, their *landskips* and *animals* are good, but their *human figures* bad. *Lisle* and the other cities named come behind *Oudenard*.

The *French* manufactories of *Felletin* do tolerably well in *landskips*, *Aubusson* in *figures*; and *Beauvais* in both.

The usual widths of *tapestries* are from two ells to three ells *Paris*-measure.

*The Manufacture of TAPESTRY of the High-Warp.*

The *loom*, whereon 'tis wrought, is plac'd perpendicularly: it consists of four principal pieces; two long planks or cheeks of wood, and two thick rollers or beams.

The planks are set upright, and the beams across'em, one at the top, and the other at the bottom, at about a foot distance from the ground.

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They have each their *trunnions*, by which they are suspended on the planks, and are turn'd with bars.

In each roller is a groove from one end to the other, capable of containing a long round piece of wood, fasten'd therein with hooks.

The use of it is to tye the ends of the *warp* to.

The *warp*, which is a kind of worsted or twisted woollen thread, is wound on the upper roller; and the work as fast as wove is wound on the lower.

Within side the planks, which are seven or eight foot high, fourteen or fifteen inches broad, and three or four thick, are holes pierc'd from top to bottom, in which are put thick pieces of iron, with hooks at one end, serving to sustain the coat stave: these pieces of iron have also holes pierc'd, by putting a pin in which, the stave is drawn nearer or set further off; and thus the coats or threads are stretch'd or loosen'd at pleasure.

The coat-stave is about three inches diameter, and runs all the length of the *loom*; on this are fix'd the coats or threads, which make the threads of the *warp* cross each other. It has much the same effect here, as the spring-stave, and treddles have in the common *looms*.

The coats are little threads fasten'd to each thread of the *warp* with a kind of sliding knot, which forms a sort of mesh or ring. They serve to keep the *warp* open for the passage of broaches wound with filks, woollens, or other matters used in the piece of *tapestry*.

In the last place, there are a number of little sticks of different lengths; but all about an inch diameter, which the workman keeps by him in baskets, to serve to make the threads of the *warp* cross each other, by passing them across: and that the threads thus cross'd may retain their proper situation, a pack-thread is run among the threads, above the stick.

The *loom* being thus form'd, and mounted with its *warp*, the first thing the workman does, is to draw on the threads of this *warp*, the principal lines and strokes of the design to be represented on the piece of *tapestry*; which is done by applying cartoons, made from the painting he intends to copy, to the side that is to be the wrong side of the piece, and then with a *black-lead* pencil following and tracing out the contours thereof on the thread of the right side; so that the strokes appear equally both before and behind.

As for the original design the work is to be finish'd by, 'tis hung up behind the workmen, and wound on a long staff from which a piece is unroll'd from time to time, as the work proceeds.



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Besides the *loom*, &c. here describ'd, there are three other principal instruments requir'd for working the silk or the wool of the woof within the threads of the *warp*; these are a broach, a reed and iron-needle.

The broach is made of a hard wood, seven or eight inches long, and two thirds of an inch thick, ending in a point with a little handle. This serves as a shuttle; the silks, woollens, gold or silver to be used in the work, being wound on it.

The reed or comb is also of wood, eight or nine inches long, and an inch thick on the back, whence it grows less and less to the extremity of the teeth, which are more or less apart, according to the greater or lesser degree of fineness of the intended work.

Lastly, the needle is in form of the common needle; only bigger and longer. Its use is to press close the wool and silks, when there is any line or colour that does not fit well.

All things being prepar'd for the work, and the workman ready to begin, he places himself on the wrong side the piece, with his back towards the design; so that he works as it were blindfold, seeing nothing of what he does, and being oblig'd to quit his post and go to the other side the *loom*, whenever he would view and examine the piece to correct it with his pressing-needle.

To put any silk, &c. in the *warp*, he first turns and looks at the design, then taking a broach full of the proper colour, he places it among the threads of the *warp*, which he brings cross each other with his fingers, by means of the coats or threads, fasten'd to the staff; this he repeats every time he is to change his colour.

Having plac'd the silk or wool, he beats it with his reed or comb; and when he has thus wrought in several rows over each other, he goes to see the effect they have, in order to reform the contours with his needle, if there be occasion.

As the work advances, it is roll'd upon the lower beam; and when he has thus wrought, they roll it upon the lower beam, and unroll as much *warp* from the upper beam as suffices them to continue the piece; the like they do of the design behind them.

When the pieces are wide, several workmen may be employ'd at once.

We have but two things to add; the first is, that this *high-warp tapestry* goes on much more slowly than the *low-warp*, and takes up almost twice the time and trouble.

The second is, that all the difference that the eye can observe between the two kinds consists in this, that in the *low-warp* there is a red fillet about one twelfth of an inch broad,

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running on each side from top to bottom; which is wanting in the *high-warp*.

*The manufacture of TAPESTRY of the Low-Warp.*

The *loom* or frame wherein the *low-warp* is wrought, is much like that of the weavers; the principal parts thereof are two strong pieces of wood, forming the sides of the *loom*; and bearing a beam or roller at each end: they are sustain'd at bottom with other long pieces of wood, in manner of tressles; and to keep them the firmer, are likewise fastened to the floor with a kind of buttresses, which prevent any shaking, though there are sometimes four or five workmen leaning on the beam at once.

The rollers have each their trunnions, by which they are sustain'd; they are turn'd by large iron pins three foot long.

Along each beam runs a groove, in which is plac'd the *wich*, a piece of wood of above two inches diameter, and almost the length of the roller: this piece fills the groove intirely, and is fastened therein from space to space by wooden pins.

To the two wiches are fastened the two extremities of the warp, which is wound on the further roller, and the work as it advances on the nearer.

Across the two sides, almost in the middle of the loom, passes a wooden bar, which sustains little pieces of wood, not unlike the beam of a balance: to these pieces are fastened strings, which bear certain spring-staves, wherewith the workman by means of two treadles under the loom, on which he sets his feet, gives a motion to the coats, and makes the threads of the warp rise and fall alternately.

Each loom has more or fewer of these spring-staves, and each stave more or fewer coats, as the *tapestry* consists of more or fewer threads.

The design or painting the *tapestry-man* is to follow, is placed underneath the warp, where it is sustained from space to space with strings, by which the design is brought nearer to the warp.

The loom being mounted, there are two instruments us'd in working of it, *viz.* the *reed* and the *flute*.

The *flute* does the office of the weaver's shuttle: 'tis made of a hard polish'd wood three or four lines thick at the ends, and somewhat more in the middle, and three or four inches long. On it are wound the silks, or other matters to be us'd as the woof of the *tapestry*.

The *comb* or *reed* is of wood or ivory; it has usually teeth on both sides; it is about an inch thick in the middle, but diminishes each way to the extremity of the teeth; this serves to beat the threads of the woof close to each other, as fast as the workman

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man has pass'd and plac'd them with his flute among the threads of the warp.

The workman is seated on a bench before the loom, with his breast against the beam, only a cushion or pillow between them; and in this posture separating with his fingers the threads of the warp, that he may see the design underneath; and taking a flute, wound with the proper colour, he passes it among the threads, after having rais'd or lower'd them by means of the treadles, moving the spring-staves and coats.

*Lastly*, to press and close the threads of the silk or yarn, &c. this place he strikes each course (*i.e.* what the flute leaves in its passing and coming back again) with the reed.

That which is very remarkable in the manufacture of the low warp, and which is common to it with the high, is, that it is all wrought on the wrong side; so that the workman cannot see the right side of his *tapestry*, 'till the piece is finish'd and taken out of the loom.

TARTAR, a kind of salt, which is produc'd from fumous wines, which sticks to the top and sides of casks, and forms a greyish crust, and hardens to the consistence of a stone.

The goodness of *tartar* rather depends upon repeated fermentations; which a succession of new wines in the same cask for several years makes, than on the soil or climate where the wine is produc'd.

*Tartar* is either *white* or *red*, according to the colour of the wine it is produc'd from.

That which comes from *Germany* is accounted the best, as being taken out of those monstrous tuns, some of which hold 1000 pipes of wine, so that the salt has time to come to its consistence, which is one of the chief qualities to be regarded in *tartar*.

That of *Montpellier* is the next in order; then that of *Lyons*, *Paris*, &c.

*White tartar* is preferr'd, and for some uses is really better: the marks of good *tartar*, of either kind, are, its being thick, brittle, brilliant, and very little earthy.

*Tartar* is of considerable use with *dyers*, as it serves to dispose the stuffs to take the colours the better.

*Salt of tartar* is made of *tartar* wash'd, ground, purified and calcin'd in paper by a reverberatory fire; or it is made by pulverizing what remains in the retort, after the distillation of *tartar*. On the one or the other of these preparations, they pour a great quantity of hot water to make a lye of it; this they filtrate, and evaporate the liquor by a sand-heat, 'till the fix'd salt be found at the bottom of the vessel: this is the *alkali* or fix'd *salt of tartar*.

## T A R

### *The way to calcine Tartar.*

We have already given one preparation of *tartar*, both for the calcination of it, and to extract the salt; and have largely shewn of what importance it is to dry it thoroughly: for that reason we will not repeat it here, but refer the reader thither.

To make this calcination, which is easy, take *tartar* in great lumps, the thickest and most shining you can get, blow away all the powder, then put it in new earthen pots upon live coals, or in a little furnace, where you must leave it 'till it smoaks no more, and all its humidity be exhaled, and it be reduced into lumps of a black purplish colour; then it is calcined and well-prepared.

*Tartar* may also be calcined by wrapping it in pieces of brown paper; then lay a bed of live coals, and lay a bundle of them upon it; then another layer, or bed of coals, and on them another parcel of *tartar*: continue thus to do S. S. S. 'till all your parcels of *tartar* be laid on, observing that the upper layer be always of coals; and leave the whole in that state 'till the *tartar* be well calcined, and leaves off smoaking; then take it off, and blow away the ashes.

### *The way of making a very fine and pure Salt of Tartar.*

*Neri* makes use of no *salt of tartar* in all his preparations of artificial gems; notwithstanding, this *salt* being prepared after a certain way, we shall here relate for the sake of the curious. It serves in a great measure to work the crystal, being a true vehicle for the better introducing the colours that are to be given, and which is of use for the tinctures several ways.

Those, who in the operations of artificial gems have made no use of *salt of tartar*, have without doubt been ignorant of this fine preparation of it; for if you use ordinary *salt of tartar*, there is a sulphur and foulness in it, which renders crystal obscure, and consequently would be hurtful in these operations.

To make this salt, you must calcine your *tartar* 'till it becomes grey, and not to perfect whiteness, and then dissolve it in warm water to extract the salt, filter that water, and then evaporate it over the fire; then you'll have remaining at the bottom of the vessel a white salt.

To take away all foulness from the salt, dissolve it again in warm water, then evaporate it again over a gentle fire, take it off the fire, and cast it into cold water, and you'll find it will leave on the surface of the water a thick froth, which you must skim off with a skimmer, that has little holes no bigger than a small pin's head; put the vessel again on the fire, and evaporate the water as before; then take it off the fire, and cast upon it fresh cold water, and skim it well as before; reiterate this process 'till you find no more froth, then evaporate the whole over a gentle

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gentle fire 'till it be dry, and you will have a *salt of tartar* well purified, which is not so fusible as the other, because it is free from all that unctuousity, which causes the fusion.

Keep this *salt of tartar* in a vessel well-stopped, and use of it in crystal with your colours, when you set them to melt.

Altho' this *salt of tartar* be very fine and pure, yet it is not that of the philosophers, which has far more virtue, and opens more powerfully the metals and minerals where it is employed, tho' it be of the same nature as this, and extracted from the same principal.

### *The way of purifying Salt of Tartar.*

Take *tartar* of red wine the biggest lumps, calcine it in earthen pots in a strong fire, 'till it becomes black, and all the unctuousity be exhaled, and 'till it begins to grow white; then put this *tartar* into earthen vessels glaz'd, fill them with common water, and boil over a gentle fire, so that in the space of two hours the fourth part of the water may be evaporated.

Then take them from the fire, and when the water is cool, and become clear, decant it off gently, without troubling the *faeces* or sediment, and you'll have a strong sharp lee. Then fill the vessels again, wherein the *faeces* remain with common water, and let them boil as before; then let them cool again, and decant them off as before, and repeat this 'till the water become insipid: when you have done this, filter the lees, and put them into glass bodies to evaporate in the ashes at a gentle heat, and there will remain at the bottom a very white salt.

Take this salt, and dissolve it again in common water, and let it stand still two days, that the *faeces* may settle; then filtre and evaporate at a gentle fire as before, then you will have a salt whiter than the former. Continue this process of filtering, dissolving, and evaporating it three or four times, and you'll have a salt whiter than the snow itself, purified from all its terrestreity; which being mix'd with *polverine*, *rocketta*, or *soda*, and the requisite dose of *Tarso*, or sand being made very fine, and well searced, will yield a very good *frit*, and that a crystalline and common glass finer and better than that before.

TAWING is the art or manner of dressing skins in white; to fit them for use in divers manufactures, particularly gloves, &c. as chiefly those of *lamb*, *sheep*, *kids*, *goats*, &c.

Having clear'd the skins of wool or hair by the means of *lime*, &c. (as is describ'd in the article SHAMMY) they are laid in a large vat of wood or stone, set on the ground full of water, in which *quick-lime* has been slak'd; in this they are let lie for a month or six weeks, as the weather is more or less hot; or as the skins are requir'd to be more or less soft and pliant.

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While they are in the vat, the water and *lime* is chang'd twice, and the skins are taken out and put in again every day.

When they are taken out for the last time, they are laid all night to soak in a running water, to get out the greatest part of the *lime*; and in the morning are laid together by sixes one upon another, upon the wooden leg, and are scrap'd stoutly one after another, to get the flesh off from the fleshy side, with a cutting two-handed instrument call'd a knife, and then they cut off the legs, (if they are not cut off before) and other superfluous parts about the extremes.

Then they are laid in a vat or pit with a little water; where they are well full'd with wooden pestles for the space of a quarter of an hour, and then the vat is fill'd up with water and they are rinsed in it.

In the next place they are thrown on a clean pavement to drain; and afterwards cast into a fresh pit of water, out of which they rinse them well; and are laid again on the wooden leg six at a time with the hair side outermost, over which they rub a kind of whetstone very briskly to soften and fit them to receive four or five more preparations, given them on the leg, both on the flesh side and the hair side, with the knife, after the manner above mention'd.

After this they are put into a pit of water and wheaten bran, and stirr'd about in it with wooden poles, till the bran is perceiv'd to stick to them; and then they are left: as they rise of themselves to the top of the water by a kind of fermentation, they are plung'd down again to the bottom; and at the same time fire is set to the liquor, which takes as easily as if it were *brandy*, but goes out the moment the skins are all cover'd.

They repeat this operation as often as the skins rise above the water; and when they have done rising, they take them out, lay them on the wooden leg, the fleshy side outwards, and pass the knife over them to scrape off the bran.

Having thus clear'd them of the bran, they lay the skins in a large basket, and load them with huge stones to promote their draining; and when they have drain'd sufficiently, they give them their feeding, which is perform'd after the manner following:

For 100 of large sheep skins, and for smaller in proportion, they take eight pounds of *alum*, and three of sea-salt, and melt the whole with water in a vessel over the fire, pouring the dissolution out, while yet lukewarm, into a kind of trough, in which is twenty pound of the finest wheat-flower, with the yolks of eight dozen of eggs; of all which is form'd a kind of a paste, a little thicker than children's pap; which when done, is put into another vessel to be us'd in the following manner:

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They pour a quantity of hot water into the trough, in which the paste was prepar'd, mixing two spoonfuls of the paste with it; to do which they use a wooden spoon, which contains just as much as is requir'd for a dozen of skins: and when the whole is well diluted, two dozen of the skins are plunged into it; but they take care that the water be not too hot, which would spoil the paste, and burn the skins.

After they have lain some time in the trough, they take them out one after another with the hand, and stretch them out, this they do twice; and after they have given them all their paste, they put them into tubs, and there full them afresh with wooden pestles.

Then they put them into a vat, where they are suffered to lie for five or six days, or more; then they take them out in fair weather, and hang them out to dry on cords or racks, and the quicker they are dry'd the better it is; for if they be too long a drying, the salt and alum within them are apt to make them rise in a grain, which is an essential fault in this kind of dressing.

When the skins are dry, they are made up into bundles, and just dipt in fair water, and taken out and drain'd, and being thrown into an empty tub, and after having lain some time, are taken out, and trampled under foot.

Then they draw them over a flat iron instrument, the top of which is round like a battledore, and the bottom fix'd into a wooden block, to stretch and open them; and having been opened, they are hung in the air upon cords to dry; and being dry, they are opened a second time, by passing them again over the same instrument.

In the last place they are laid on a table, pull'd out, and laid smooth, and are then fit for sale.

After the same manner are dress'd horses, cows, calves skins, &c. for the sadlers, harness-makers, &c. as also those of dogs, wolves, bears, &c. except that in these they omit using the paste, salt and alum water being sufficient.

### *To dye Stuff a BROWN or TAWNY.*

Put a handful of *madder* into a kettle of hot water, stir it very well about, and let it stand and settle a while; moisten the stuff with it, then roll it up, and put it into the kettle upon the roll; and when you find that the colour does no longer fall upon it, then add to it two handfuls of *madder*, and let it cool; and when you perceive it to be boiled to a half-red colour, throw in a pail-full of the black dye into the *madder* suds, stir them together, and make a wood-fire under the kettle: for having its proper heat, it turns the better to brown; and if it be not dark enough, throw in another pail of the black lye, or more, 'till it becomes of the colour you would have it; then work the  
stuff



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stuff in it very well upon, or with, the roller, to hinder it from spotting.

### *Another TAWNEY.*

First give the stuffs a *blue* ground, which must be either light or deep, according as you would have the *tawney*.

Then alum them, boiling them an hour in the *alum* water; let them stand 'till they are cold, then rinse them out, and pass them through the *madder* red dye, and they will turn to a light *tawney*, as light or as deep as you would have them, according as they are blued; then rinse and cleanse them out.

### *A deep TAWNEY.*

Let the stuffs be first dyed a *madder* red, then take the dye off the fire, and put a quart of black dye into it for every pound of stuff; heat it, and put the stuffs into it, and work it so long 'till it hath taken the dye sufficiently; then cool it, and it will be a lasting dye.

*Another.* Dye the stuffs red, then boil them in the remainder of the black dye, boiled up (after it hath been used) 'till they are dark enough, then cool them and rinse them.

† But if you would have the *tawney* light, take half of the black dye, and half water, and it will of consequence be so much thinner and weaker.

### *To dye a CRIMSON TAWNEY with cochineal.*

Alum and prepare the silk as for *crimson*, then fill a clean kettle with fair water, and some blue wood suds, of each a like quantity, and then for every pound of silk put in one ounce of galls, one ounce and half of cochineal; and afterwards, having first rinsed the silks, put them in, stir them about carefully to prevent their being variegated or spotted; because the *Provence* wood suds is apt to spot, if it be not violently stirr'd; let the silk lie one whole night in the suds, then rinse it out and dry it.

### *Another TAWNEY.*

First, lay the silk in a strong alum water for twenty-four hours, and for every pound of silk take one pound of good *Brasil* wood; boil it in a bag for full two hours, then take it out, and let the liquor stand, 'till you can just bear your hand in it, and afterwards put in the silk, and let it continue there an hour, then take it out and dry it; then boil the dye again, put it in again as before, then rinse it very clean; then beat some *bole armoniac* small, and mix it with beech ashes, to be made into a lye, which strain three or four times through a cloth; make it milk-warm, and then put in the silk; when it is deep enough dyed, rinse it, beat it, and dry it.

### *A lasting deep TAWNEY.*

Let the kettle be very clean, fill it with water, and to every pound of silk, put in one pound of *blue wood*, one pound of  
galls;

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*galls*; boil them for an hour, then fill it up with gall-water, and while it is hot, put in and stir the filk, let it lie in 'till the next day, then rinse and dry it.

*To dye SILK a CRIMSON deep TAWNEY.*

First prepare the filks (as directed for *crimson*) put a sufficient quantity of liquor into a clean kettle, and for every pound of filk, put in one pound of *madder*, one pound of *galls*, and half a pound of *blue wood*, and boil them together with the filk for an hour, putting the wood into a bag to prevent its hanging in the filk. Let the filk lie a whole night in the liquor, in the morning take it out, wring it, rinse it, and beat it well, then rinse it again; and afterwards beat and dry it.

*A slighter sort of TAWNEY.*

This is prepar'd after the same manner with the red, with this difference; for every pound of filk take one pound of *Brasil* wood, and two ounces of *Provence* wood, manage the filk as in the red, and dye it.

TAX is represented [in *Painting*, &c.] by a lusty young man with an oaken crown; in his right hand a pair of shears, a sheep at his feet; in his left hand ears of corn, an olive-branch, and a bunch of grapes hanging down, without breeches, his arms and legs bare, the soles of his feet callous.

He is robust, because taxes are the nerves of the commonwealth; the oaken crown denotes his strength; the shears allude to the saying, It is the part of a good shepherd to shear the sheep, and not to slay them; the things in his hand shew, that taxes are laid upon those that taxes should be levied upon, not for meer covetousness, but for the publick weal, without any other design.

TEINTS and Semi-teints [in *Painting*,] are the several colours us'd in a picture, considered as more or less high, or bright or deep, or thin or weakened, or diminish'd, &c. to give the proper relieve or softness, or distance, &c. of the several objects.

TELLUS, the goddess of the earth is represented [in *Painting*,] cloth'd in a green mantle.

TEMPERANCE is represented [in *Painting*, &c.] by a gentlewoman, holding a bridle in one hand, and the stay of a clock in the other, an elephant by her.

The bridle and stay denote the business of *temperance* to bridle and moderate the appetite and inordinate passions, as time serves; the elephant, because it has once been accustomed to a certain quantity of meat, it never exceeds, but keeps strictly to that, and will eat no more.

TEMPERING steel and iron, is a preparing them, in order to render them either more compact, hard, and firm, or more soft and pliant, according as the uses of them shall require:  
these

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these metals are tempered by plunging them, while red-hot, in some liquor prepar'd for the purpose; sometimes in pure water, as locksmiths, &c. which seldom use any other.

And sometimes a composition of divers juices, liquors, &c. is us'd; which is various according to the manner and experience of the workman, as vinegar, mouse-ear water, the water oozing from broken glasses, foot, salt, oil, &c.

To harden and temper *English*, *Flemish*, and *Swedish* steel, they must have a pretty high heat given them, and then be suddenly quench'd in water to make them hard: but *Spanish* and *Venetian* steel will require no more than a blood-red heat before it is quench'd.

If the steel be too hard or brittle for an edg'd tool, &c. take it down by rubbing a piece of grind-stone or whet-stone hard upon the work, to take off the black scurf; then brighten or heat it in the fire, and as it grows hotter, you will see the colour change by degrees, coming first to a straw or light goldish colour, then to a darker goldish colour, and at last to a blue colour.

Chuse such of these colours as the work requires, then quench it suddenly in the water.

The light gold colour is for files, cold chissels, and punches to punch iron and steel: the dark goldish colour for punches to use on brass, &c. the blue colour gives the temper for springs.

The tempering of files and needles is perform'd after a peculiar manner.

The antients appear to have had some better method of *tempering*, than any of the moderns are acquainted withal, witness their works in *porphyry*, a stone so hard, that none of our tools make an impression upon it.

ANTONIO TEMPESTA born in the year 1555, scholar of *John Strada a Fleming*, liv'd at *Rome*, excell'd in battles and hunting-pieces, died in the year 1630, aged 75 years.

TERM } Is a kind of statue or column, adorn'd at the  
TERMINUS } top with the figure of a man's, woman's, or  
fatyr's head as a capital, and the lower ending in a kind of sheath or scabbard.

These are suppos'd to have taken their name from the *Roman* deity *Terminus*, whom they esteem'd as the protector of land-marks, whose statue (made without either hands or feet, that he might not change his place) was wont to be set up at the bounds of lands to separate them.

These are also by some call'd *Thermes*, and deriv'd from *Hermes*, a name given by the *Greeks* to the god *Mercury*, who, as they believ'd, presid'd over the highways; whose statue, made in the form before-mentioned, was erected in several cross-ways in the city of *Athens*, &c.

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**TÉRROUR**, when it is excessive, causeth the eye-brow to be very much rais'd in the middle; and the muscles, which perform the motion of these parts, very much marked and swelled, and pressed one against another, being drawn down over the nose, which will seem to be drawn up, as also the nostrils.

The eyes ought to appear intirely open, the upper eye-lid hid under the brow; the white of the eye ought to be environed with red; the eye-ball as it were wandering, and situated nearer to the lower part of the eye than the upper; the lower parts of the under eye-lids swell'd and livid.

The muscles of the nose and the hands also swell'd; the muscles of the cheeks extremely marked, and drawn into a point on each side of the nostrils.

The mouth must be very open, and the corners very apparent.

Every thing must be very much mark'd about the forehead and eyes; the muscles and veins of the neck must be very much rais'd and apparent; the hair standing up an end, the complexion pale and livid, and more especially the end of the nose, the lips, ears, and about the eyes.

If the eyes appear extremely open in this passion, it is because the soul makes use of them to observe the nature of the object, which causes the fright.

The eye-brow drawn down at one end, and raised at the other, makes it appear, that the part raised seems as if it would be join'd to the brain, to secure it from the ill, which the soul apprehends; and by the end which is drawn downwards, and appears swell'd, we find that in this condition the spirits come plentifully from the brain, as it were to cover the soul, and defend it from the ill which it fears.

The openness of the mouth indicates, that the heart is oppress'd by the blood, which is retir'd towards it; which obliges him that is possess'd with this passion, when he would breathe, to make an effort, which causes the mouth to open wide; and which, in passing by the organs of the voice, makes a kind of inarticulate sound.

*Lastly*, If the muscles and veins appear swell'd, and puffed up, it is by the spirits, which are sent from the brain into these parts.

*Terrour* hath a great many of the motions of Horrour, but they ought to appear greater and more extended; the arms stretch'd out strait forward, the legs in an action of flying with all their force, and all the parts of the body in disorder.

**E or T** PETER TESTA of *Lucca*, a painter and copious engraver, born in the year 1611, scholar of *Dominichino*, and *Peter Cortona*, liv'd at *Rome*, excell'd

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cell'd in history, died in the year 1650, aged 39, used these two marks.

THAMISIS, } The river has been represented by a captain  
The THAMES, } or soldier lying along, holding in his right hand a sword, and under his arm the *August* tower; in the other, a *cornucopia* of all fragrances, with a golden chain, holding four crowns; and with this he encompassed the streams, from under which bending of his left arm they seem'd to flow; his temples adorn'd with rays; the river empal'd on the one side, and on the other stood *Cæsar's Augusta*.

THEFT is represented [in *Painting*, &c.] by a pale youth, clothed in a wolf's skin, his arms and legs bare, with winged feet at midnight; in one hand a purse, a knife in the other with a pick-lock; the ears of a hare, and seems to be in fear.

Youth shews imprudence, that will not take warning; the paleness and hare's ears, continual suspicion and fear, and therefore it loves darkness; the skin, because the wolf lives by rapine; the barrenness shews him in distress; and the winged feet his flying from justice.

THEOLOGY is represented [in *Painting*, &c.] by a lady with two faces unlike one another, looking with the youngest toward heaven, with the old face towards the earth; sits upon a globe full of stars, her right hand on her breast, her left toward the earth, holding up her train, a wheel by it.

The wheel denotes divinity not touching the earth, but by its circumference, so should a divine keep himself unspotted from the world; sitting upon a globe shews, that divinity reposes in no inferior thing; her hands, gravity; the skirt of her garment shews, that some part of divinity extends to low things, tho' necessary.

THEORY is represented [in *Painting*, &c.] by a young woman looking upward, her hands clasp'd together, a pair of compasses on her head, nobly clad in purple, seeming to descend the stairs.

The colour of her garment shews, that the sky terminates our sight; her face, that the intellect is taken up in celestial things; the stairs, that things intelligible have order, proceeding by degrees from things near, to things afar off; the compasses are the most proper instrument for measuring, which perpetuate the name of an author.

THETIS, a sea-goddes, is represented [in *Painting*, &c.] as a lady of a brown complexion, her hair dishevelled, adorn'd with a coronet of periwinkle and escallop shells, clad in a mantle of a sea-green colour, adorn'd with bracelets of amber about her neck and arms, and holding in her hand a branch of coral.

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PELLEGRINO TIFALDI *call'd otherwise* PELLEGRINO de BOLOGNA, born in the year 1522, scholar of *Dan. da Volterra*, liv'd at *Bologna, Rome, Milan*, excell'd in history and architecture, died in the year 1592, aged 70 years.

TIGRIS, a river of , is represented in the form of an old man, and by his side a tyger.

*The beast as well denotes its first streams, as the number of tygers which are there.*

HENRY TILSON was an *English* face-painter of good note, born in *London*; after he had been instructed for some time by *Sir Peter Lely* in the nature of face-painting, he travell'd for *Italy*, where he staid six or seven years, and during that time, he copied, with wonderful care and exactness, a great number of pictures of the best masters; by which means, at his return to *England*, he became not a little famous in the portrait way.

He had also a particular genius for crayons, in which he performed admirably well, after the pictures of *Correggio, Titian* and the *Caracci*, while he was at *Rome*. He died at thirty-six years of age, and lies buried in *St. Clement's*.

### TIMBER-WORK.

The manner of colouring all manner of *timber-work*, as wain-scot, doors, windows, posts, rails, pales, gates, border-boards for gardens, &c. which require either beauty or preservation from the violence of rain, or injury of weather, is as follows:

Suppose there be a set of pallisades, or a pair of gates, or some posts and rails to be painted in a stone colour;

*First*, Look over the work, and take notice whether the joints be open in the gates, or, whether there be any large clefts in the posts; for if these are not secur'd, the wet will insinuate itself into those defects, and make the quicker dispatch in rotting the whole work.

Therefore the first thing to be done, is to stop up those clefts, &c. smooth and even, with a substance which painters call *putty*, which is made of whiting and linseed oil, well beaten together on a grinding-stone, or with a wooden mallet, to the consistence of a very thick dough; and with this, let all the crannies, clefts, and other defects, be well fill'd up, so that it may be equal to the surface or outside of the things to be painted.

Then prime the work with *Spanish* brown well-ground, and mix'd very thin with linseed-oil; with this do over the work, giving it as much oil as it will drink up; this in about two days will be indifferent dry. Then if you would do the work substantially, do it again with the same priming colour; when it is thorow dry, take white lead, well-ground and tempered with linseed-oil, but not too thin; for the stiffer you work it, if it be not too stiff, the better body will be laid on, and the longer



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it will last: rub this colour on well with a large bristle brush, that the whole surface of the work be so intirely covered, that no crack nor corner may remain bare; which may be easily done, by jobbing in the point of a bristle brush.

Let this first colouring dry, and then go over it a second time; and if you please, a third also; the charge will be but little more, but the advantage will be great in the duration.

This course is sufficient for every kind of *timber-work*, which requires only a plain colour, whether you cover the work with a stone colour, or else with a timber colour with umber and white, or a lead colour with indigo and white.

Some lay over their work only a coat of *Spanish* brown, by tempering it up more stiff than was done for the two first primings; which, in some respects, is the cheapest way of all, and preserves the timber perhaps as well as any.

*Note*, If when you have made use of your colours, there be occasion for a small cessation, 'till the work be finish'd; in this case, you must cover the colour that remains in the pot with water, which will prevent its drying and skinning over.

And the pencils also, or brushes, should be wash'd out in clear linseed-oil, and then in warm soap-suds; for if either oil, or colours, be once dried in the brush, or pencil, they are spoil'd for ever.

It has been observ'd, that *timber* laid over with white, when it has stood some time in the weather, the colour will crack and shrink up together, just as pitch does, if laid on any thing that stands in the sun. The cause of this is, that the colour was laid on with too stiff a body; for being wrought too thick once, it will dry with a skin on the outside, which will keep the inside moist, and prevent its binding firm, from whence those cracks proceed.

*Of Out-door painting in general.* Doors, shop-windows, window-frames, pediments, architraves, friezes, corniches, and all other *timber-works*, that are expos'd to the weather, ought at first setting up to be prim'd with *Spanish* brown, *Spanish* white, and red-lead (about a fifth) to cause the other two colours to dry.

These being well-ground with *linseed-oil*, will make a very good primer; then afterwards with the same colour (but whiter) for a second primer; and lastly, with a fair white made of white lead, and about a fifth part in quantity (not in weight) of *Spanish* white.

Now he that is able to bring the work thus far on, has proceeded to the highest pitch of that vulgar painting, that aims at preservation beyond beauty, tho' something of beauty is necessarily included in this also. But this is not all, for he that is arriv'd



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arriv'd thus far, is in a fair way to other perfections in the art of painting; but for the pannelling of wainscot with its proper shadows, and for imitating olive and walnut-wood, marbles, and such like, these must be attain'd to by ocular inspection, it being impossible to deliver the manner of the operation by precept, without example: and I am bold to affirm, that a man shall gain more knowledge by one day's experience, than by an hundred spent to acquire it some other way.

I advise therefore all those, that desire an insight into the business, to be a little curious, if opportunity offers, in observing the manner of a painter's working, not only in grinding his colours, but also in laying them on, and working in them; in all these observing the motion of his hand in the manage of any kind of tool: and by this means, with a little imitation, join'd to the directions here given, I doubt not, but in a short time, you may arrive to great proficiency in the business of vulgar painting.

Take notice, that if you shall at any time have occasion to use either brushes that are very small, or pencils, as in many cases there will be occasion; you ought then to dispose of the colours you use upon a pallet (*which is a wooden instrument, easy to be had at any colour-shop*) and there work and temper them about with your pencil, that the pencil may carry away the more colour: for you are to Note, that if a pencil be only dipt in a pot of colour, it brings out no more with it than what hangs on the outside, and that will work but a little way; whereas, if you rub the pencil about in the colour, on the pallet, a good quantity of colour will be taken up in the body of the pencil; and besides all this, you may work your pencils better to a point on a pallet, than you can do in a pot; the point of a pencil being of greatest use in divers cases, especially in drawing of lines.

TIME is drawn standing upon an old ruin, winged, and with iron teeth. Or thus; as an old man clothed in a garment of stars, having upon his head a garland of roses, ears of corn, and dry sticks, standing upon the *zodiack*, holding a looking-glass in his hand, and having two children at his feet, the one fat, and the other lean, both writing in one book; upon the head of one is the sun, and upon the other the moon.

It is also represented by an old man, bald behind, winged, with a scythe and an hour-glass, having a lock of hair on his forehead, but bald behind.

TIN is a whitish metal softer than silver, yet much harder than lead.

Several, both chymists and others, account *tin* an imperfect metal, generated of two different seeds, *viz.* that of silver and

## T I N

that of lead, which renders it a kind of compound of both; and accordingly it is frequently found in both lead and silver mines.

But, however, *tin* has its proper mines, of which our counties of *Cornwall* and *Devonshire* are a sufficient proof; the greatest part of the *tin* consum'd in *Europe*, being got out of them.

The principal characters, or properties of *tin*, as they are enumerated by M. *Boerhaave*, are, that it is the lightest of all metals, very little ductile or elastic; the most fusible and volatile of all metals, scarce dissolvable by acids, unless by those of the weaker sorts; and easily and intimately miscible with other metals, the ductility of which becomes diminish'd by such a mixture.

The same author concludes, that sulphur is a prevailing ingredient in *tin*, and deduces several of its properties therefrom. He likewise adds, that could the metal be purg'd of this heterogeneous sulphur, 'tis probable it would be found no other than silver.

Several authors have taken notice of a great conformity of **TIN** and **LEAD** in divers particulars between the two metals. And Mr. *Boyle*, and others, have given us several instances of silver being actually procur'd in a considerable quantity from *tin*-ore.

Yet some naturalists have thought, that there is a greater analogy between *tin* and *lead*; and will have it, that *tin* is only lead under a less degree of coction; but if there be some marks of agreement betwixt them, there are as many of disagreement.

*The method of getting, preparing, &c. TIN in the Cornish mines.*

The working of the *tin* mines is very hard and difficult; not only by reason of the great depth, which the veins descend to, even as low as fifty fathom; but also because the rocks, through which passages are frequently to be cut, are often so hard, that the workman can't dig a foot in a week.

Nor is the soft shaking earth found in *tin*-mines, much less inconvenient to the workmen; both by reason of foetid, malignant vapours it exhales, and of the currents of water often met with therein: all these disadvantages together render it impracticable for the workmen to hold it above four hours together.

The mineral stones, or glebe, being dug and drawn out of the mine, is there broke to pieces with large iron mallets; then brought to a stamping-mill, where it is pounded smaller with stampers, like those of paper-mills; and the water passing through it, washes away the earthy parts, leaving the metallic ones behind. This lotion, on washing, is repeated twice to make the better separation.

When this has been done, they dry it in a furnace on iron-plates, and afterwards grind it very fine in a crasing mill; then they

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they wash it again, and then dry it: and in this state the metallic matter is call'd *block* or *black tin*.

To convert it into *tin*, i. e. into *white tin*, they carry it to a furnace or blowing-house; where by means of a charcoal fire, kept up with huge bellows, work'd with water, it is melted. After it has pass'd all these preparations, and is grown cold, they forge it, which is the last thing done to it in the works.

The dross, or *scoria*, being scumm'd off, and the *tin* in fusion, and being melted down with fresh ore, runs into metal, and even the caufalty, i. e. the matter wash'd and separated from the metal in the mill, being thrown up in heaps, after resting six or seven years, they fetch it over again, and it yields as good *tin* as any of that in *Germany*.

The workmen distinguish several kinds of *tin*, as *moor tin*, which is the best sort, a foot of which weighs eighty pounds; and *mine tin*, which is the next, a foot of which weighs fifty-two or fifty pounds. The *tin* got from the soft gravelly earth, they call *pryan tin*, to distinguish it from that got from the stones, which is better by almost half.

Two pounds of *black tin*, when melted, make about one of *white*.

By the analysis made of this metal, they hold it compounded of *earth*, *sulphur*, a *metallick salt*, and *mercury*.

### *The method of assaying TIN.*

To find whether *tin* be soft and ductile, or harsh and brittle, there are two kind of assays: the first is by putting the *tin* into a hot brass mould, and there melting it.

If the metal be harsh, it will be heavier when it comes out than when it went in, otherwise it will be lighter.

The second is, by casting the melted *tin* into a little mould made of thunderstone.

This mould has a little canal of a moderate length, which conducts the matter into a cavity, capable of containing half a billiard ball; if the *tin* be harsh, it will appear whitish towards the entry of the mould, otherwise 'tis tinged superficially of a very faint blueish brown.

### *To colour TIN or COPPER of a GOLD colour.*

Set *linseed-oil* on the fire, scum it well, and put in *amber* and *hepatic aloes*, of each a like quantity; stir them well together till it grows thick; then take it off, cover it close, and set it in the earth for three days: when you use it, strike the metal all over with it with a pencil-brush, let it dry, and it will be of a golden colour.

### *To take away the ringing and softness of TIN.*

Melt the *tin*, and cast in some *quicksilver*, remove it from the fire, and put it in a glass retort, with a large round belly,

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and a very long neck; heat it red-hot in the fire, 'till the *mercury* sublimes, and the *tin* remains at the bottom: do this three or four times.

The same may be done by calcining it three or four times, by which means it will sooner be red-hot than melt.

*To take away the softness and creaking noise of TIN.*

You may effect this by granulating it often, and then reducing it again, and quenching it often in *vinegar*, and a *lixivium* of *salt of tartar*: the *creaking* noise is taken away, by melting it seven or eight several times, and quenching it in boy's *urine*, or else oil of walnuts.

*To take away the deaf sound of TIN.*

Dissolve it in *aqua-fortis* over a gentle fire, 'till the water fly away; doing thus so long, 'till it is all turn'd to a *calx*, which being mix'd with *calx* of silver, and reduc'd, performs the work.

*To prevent TIN from cracking.*

Take salt and honey, of each a like quantity, and mix them, melt the *tin*, and put it twelve or more times into it, then strain out the *tin*, and it will purge and leave cracking; put it into a crucible, lute it, and calcine it twenty-four hours, and it will be like *calx* of gold.

*To make a kind of counterfeit silver of TIN.*

Mingle *silver* with *tin*, melted with *quicksilver*, keeping it a long time in the fire; then being brittle, it is made tough by keeping it in a gentle fire, or under hot embers, in a crucible, for about twenty-four hours.

TIN-GLASS, a mineral matter, white, smooth, and as to appearance resembling *tin*; but hard, sharp, brittle, and dispos'd into shining scales, as it were pieces of glasses, whence it took its name. It is the same that is call'd *bismuth*.

TINNING is the covering or lining any thing with melted *tin*, or with *tin* reduc'd to a very fine leaf.

Sauce-pan, and other kitchen utensils, are tinned with melted *tin*; and locks, bits, spurs, &c. with leaf-*tin*, by the help of fire.

Looking-glasses are foliated or tinn'd with thin sheets of beaten *tin*; the whole bigness of the glass, apply'd and united to it by means of *quicksilver*.

Plumbers use to tin or whiten their sheets of lead; in order to which, they have a *tinning* furnace, fill'd with live coal, at the two sides of which two men are plac'd, who hold up the sheets over the fire to heat; and the *tin*-leaves being laid over them, as fast as the sheets grow hot, and the *tin* melts, they fix it on by rubbing and stretching it with tow and rosin.

GIACOMO ROBUSTI call'd TINTORETTO, born in the year 1512, scholar of *Titian*, studied *Michael Angelo* for design, liv'd at *Venice*, excell'd in history and portraits, died in 1594, aged 82 years.

TOPAZ,

## T O P

**TOPAZ**, a precious stone, esteem'd of the third order after the diamond. It is of a beautiful yellow, or gold colour, transparent, very hard, and takes a fine polish.

It is found in *Bohemia*, several parts of the *Indies*, *Ethiopia*, *Arabia*, and *Peru*, and is the true chrysolite of the ancients.

Those of *Bohemia* are yellow and a little blackish, are the softest of all, their polish the coarsest.

Those of *Peru* are softer than the oriental ones, but their colour is much the same; the colour of the oriental ones border upon the orange, and they are the most esteem'd; those of *Madagascar* were formerly valued, but are now accounted good for little.

The *topaz* is easily counterfeited, and there may be counterfeit ones made, which to the eye will not come behind the natural ones.

### *To make an oriental Topaz.*

It will be needless here to repeat the quality of the *topaz*, since we have done it already in this book; so we shall content ourselves, to shew the manner of imitating it with our paste, composed of natural crystal and *Saturnus glorificatus*, whereof take ten ounces; of very good *orpiment* one ounce, reduced to fine powder: after having mixed them well together, put them into a crucible, covered with another, which lute and dry well; then put it into a glass-house furnace for three hours, and then let it cool gently in the annealing furnace. Having taken your matter out of your crucible, you may cut and polish it as you please, and you'll have a very fine oriental *topaz*.

### *To make a paste for an oriental Topaz.*

The *topaz* of the ancients is the same, which the moderns call a chrysolite; and their chrysolite, that which modern jewellers call a *topaz*, which is a stone of a golden colour. Such are the oriental *topaz's*, which are the most hard of all stones next the diamond; their colour is like water tinged with saffron or rhubarb, but shining and pure.

There are some found in *Europe*, but as soft as crystal, and approach somewhat on black with a golden colour; if there is any found of the colour of pure gold, it is extraordinary; and not distinguishable from the oriental ones but in hardness.

To imitate the oriental ones, take two ounces of natural crystal, seven ounces of red-lead in fine powder, and searced, mix the whole well together, put them into a good crucible, wherein you leave an empty space of about an inch deep, for fear the matter should run over in baking, or stick to the colour of the crucible in rising, and spoil the work.

Then proceed, observing the same circumstances of time and fire, and you'll have an admirable *topaz* colour.

## T O R

### *Another fine Topaz:*

Take two ounces of natural *crystal* prepared, two ounces of native *cinnabar*, two ounces of *æs ustum*, the whole powdered, four times as much calcined tin also pulverized, put the whole in a crucible, well covered and luted, into a furnace as before; wherein let them stand twenty-four or thirty hours, at a fire not too violent, and which shall always retain the same degree of heat, for this powder will easily melt, then you'll have a fine *topaz* coloured paste.

A very fine *topaz* colour may be made, by putting to four ounces of the same natural *crystal*, half a drachm of *crocus Martis*, and a very little *minium*, observing the same circumstances for baking it as before.

TOREUMATOGRAPHY, a term of art deriv'd from the *Greek*, and us'd to signify the knowledge, or rather the description of ancient sculptures and *basso-relievo's*.

TOREUTICE a *Greek* term, us'd to signify that part of sculpture, commonly call'd *Turning*.

TORTOISE-SHELL is the spoils or cover of a testaceous animal, us'd in inlaying, and various other uses, as snuff-boxes, combs, and other utensils.

There are two kind of *tortoises*, viz. *land* and *sea-tortoises*.

The *sea-tortoise* again is of four kinds, viz. the *fresh tortoise*, the *caret*, the *cabobanna*, and the *lager-hu*: but 'tis the *caret* alone, that furnishes that beautiful shell so much admired in *Eu ope*.

The shell of the *caret* is thick, and consists of two parts; the upper, which covers the back; and the lower the belly: the two are joined together at the sides by strong ligaments, but yet allow of a little motion.

In the fore-part is an aperture for the head and legs, and behind for the hind legs and tail.

It is the under-shell alone is us'd: to separate it from the upper, they make a little fire beneath it, and as soon as ever 'tis warm, the under shell becomes easily separable from the upper with the point of a knife, and is taken off in *lamina*, or leaves, without killing the animal, which 'tis said, being turn'd to sea again, gets a new shell.

The whole spoils of the *caret* consists in thirteen leaves, eight of them flat, and five a little bent; of the flat ones, there are four large ones, about a foot long, and seven inches broad.

The best shell is thick, clear, transparent, of the colour of *antimony*, sprinkled with brown and white.

When it is us'd in marquetry, or inlaid work, workmen give it what colour they please, by means of coloured leaves of metal, which they put underneath them.

On



## T R A

On the shore of *Brasil* there are said to be *tortoises* so large, as sometimes to dine eighty men.

And that in the *Indian* sea, the shells serve the natives for boats. *De Laet* relates, that in the island *Cuba*, they are of such a bulk, that they will creep along with five men on their back.

### To counterfeit TORTOISE-SHELL.

In order to perform this well, let the wood you intend to work on be very close grained, clean and smooth wrought off, as pear-tree or the like; but if it be rough grained, it must have a ground of size and whiting, as is done in rough *japanning* for coarse-grain'd woods, rush it smooth, and go over it with *seed-lac* varnish, the breadth of a silver leaf, which take up with cotton, and lay on it moist as close as may be; then wash again, and lay on another leaf of silver, and so continue to do, 'till you have laid the wood all over with silver, and when it is dry, sweep off all the loose silver with a hair-brush. Then grind *Cologn earth* very fine, and mix it with *gum-water* and *common size*; and with this having added more *size*, or *gum-water* than it was ground withal, spot or cloud the ground-work, having a fine true natural shell by you to imitate; and when this is done, you will perceive several reds, lighter and darker, appear on the edges of the black, and many times lie in streaks, on the transparent part of the shell. To imitate this finely, grind *Sanguis Draconis* with gum-water, and with a fine pencil draw those warm reds, flushing it in about the dark places more thick; but fainter and thinner, and with less colour, towards the lighter parts, so sweetening it, that it may in a manner lose the red, being sunk in the silver or more transparent parts.

When it is done and dry'd, give it at least six washes of *seed-lac* varnish; and twenty-four hours after, rush it gently; and when it is smooth, and fit for the second operation, grind *gambooge* very fine, and put it into as much *seed-lac* varnish, as will wash it six times more, and let it stand twelve hours, and give it the third varnishing; and with the last mixture wash it so often, that the silver is chang'd to a golden colour, and the work is finished.

TRACING is represented [in *Painting*, &c.] by a woman, her head winged, her garment spread all over with ants, holding up her right arm; and with her fore-finger, with which she points at a crane; and with her other fore-finger, a hound full scent after his game.

The wings denote elevation of intellect, the ants always searching out what is most convenient for their livelihood; the crane, an inquisitive man, that would investigate sublime things at a distance.

TRA-



## T R A

TRAGACANTH } A kind of gum, oozing out at incisions,  
 ADRACANTH } made in the trunk and larger branches  
 of a plant, or little shrub of the same name.

Mr. *Tournefort* tells us, the naked hillocks of mount *Ida* in *Candia* produce a deal of the plant *Tragacantha*, which gives the gum spontaneously towards the end of *June*, and in the following months; when the nutritious juice of the plant, thickened by the heat, bursts most of the vessels it is contain'd in.

This juice coagulates in threads, which make their way into the pores of the bark; where being push'd forwards by new juice, they get through the bark, and are at length hardened in the air, either into little lumps, or into twisted pieces, in form of little worms, longer or shorter, according to the matter of which they are form'd.

This plant grows also in several places of the *Levant*, particularly about *Aleppo*.

The gum is of different colours and qualities; some being white, others greyish; some red, and some almost black: but the white is the best.

It should be chosen clear, smooth, and twisted, like little worms.

TRAGEDY is represented [in *Painting*, &c.] by a gentlewoman all in mourning, a bloody dagger in her right hand, by her on the ground a garment of cloth of gold, and divers precious jewels, she being shod with *cothurni*.

The mourning suits best with *tragedy*, containing nothing but the ruin of princes by violent death, which is demonstrated by the bloody dagger; the *cothurni*, or socks, were worn by princes, to distinguish them from peasants; they shew that *tragedy* requires gravity and conception, neither mean nor trivial.

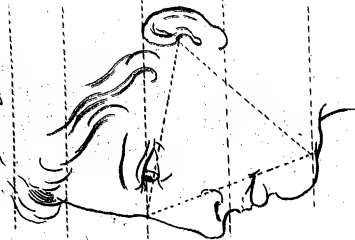
TRANSPARENCY is a quality in certain bodies, whereby they give passage to the rays of light.

The *transparency* of natural bodies, as glass, water, air, &c. is by some imputed to the great number and size of the pores and interstices between the particles of those bodies.

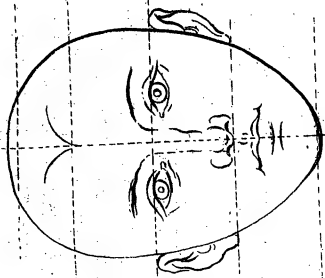
But this account is very defective, for the most solid and opaque body in nature we know, contains a great many more pores than it does matter; a great deal more size than is necessary for the passage of so infinitely fine and subtile a body as light.

*Aristotle*, *Des Cartes*, &c. place *transparency* in the rectitude or straightness of the pores; by means of which, say they, the rays are enabled to make their way through, without striking against the solid parts, and being reflected back again.

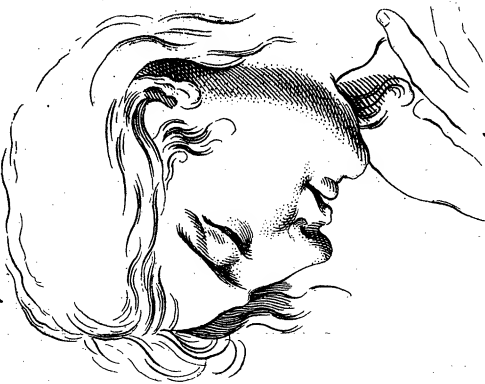
But Sir *Isaac Newton* shews this account to be lame; the quantity of pores in all bodies being sufficient to transmit all the rays



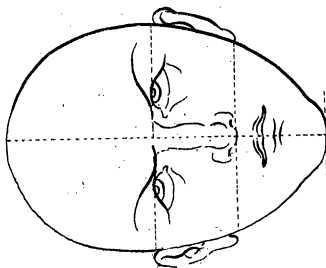
Tranquillity.



Profound Veneration.



Veneration.

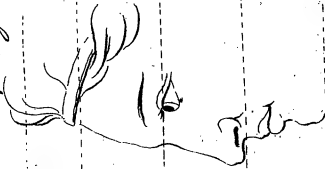


Weeping.



Time Judge.

Tranquillity.



Anger mixed w<sup>th</sup> Rage.



Weeping.





## T R E

rays that fall on them, howsoever those pores be situated with respect to each other.

The cause then, why all bodies are not transparent, must not be ascrib'd to their wanting rectilineal pores, but either to the unequal density of the parts, or to the pores being fill'd with some foreign matter, or their being empty; by means of which, the rays in passing through, undergoing a great variety of reflections and refractions, are perpetually diverted this way; and that, 'till at length falling on some of the solid parts of the body, they are extinguish'd and absorbed.

Thus cork, paper, wood, &c. are opaque, whereas *glass*, *diamonds*, &c. are transparent; the reason is, that in the neighbourhood of parts, equal in density, such as those of *glass*, *water*, *diamond*, &c. are with respect to each other; the attraction being equal on every side, no reflection nor refraction ensues; but the rays, which entered the first surface of the bodies, proceed without interruption quite through the body; those few only excepted, which chance to meet with the solid parts.

But in the neighbourhood of parts, which differ much in density, such as the parts of wood and paper are both in respect of themselves, or the air, or the empty space in their pores; as the attraction will be very unequal, the reflections and refractions must be very great; and therefore the rays will not be able to make their way through such bodies, but will be perpetually deflected, and at last quite stopp'd.

*To make the form of a FIR-TREE appear in Colophonia.*

Distil *turpentine* in a retort *gradatim*: when all is distill'd off, keep the retort still in a reasonable heat, that what humidity is still remaining may be evaporated and become dry.

Then take it off from the fire, and hold your hand to the bottom of the retort, and the *turpentine*, which is dried (call'd *colophonia* or rosin) will crack asunder in several places; and in those cracks, or chaps, you shall see the perfect figure of *fir-trees*, which will continue there many months.

*To make the SILVER-TREE of the Philosophers.*

Take *aqua-fortis* four ounces, fine silver one ounce, which dissolve in it; then take *aqua-fortis* two ounces, in which dissolve *quicksilver*: mix these two liquors together in a clear glass, with a pint of pure water; stop the glass close, and after a day you will perceive a tree to grow by little and little, which is wonderful and pleasant to behold.

*To make the GOLDEN-TREE of the Philosophers.*

Take oil of sand, or flints, and oil of *tartar per deliquium*, of each a like quantity, mix them well together; then dissolve *sol* (gold) in *aqua-regia*, and evaporate the *menstruum*; dry the *calx* by the fire, but make it not too hot, for then it will lose its  
growing

## T R I

growing quality ; break it into little bits, but not reduce it into powder, which bits put into the aforesaid liquor, a finger's breadth one from another, in a very clear glass ; keep the liquor from the air, and let the calx stand still, and the bits of calx will presently begin to grow : first they will swell, then put forth one or two stems, then divers branches and twigs, so exactly, that you cannot but wonder to see. The author affirms, that this growing is not imaginary, but real.

*To make the STEEL-TREE of the Philosophers.*

Dissolve steel in rectified spirit, or oil of salt, so shall you have a green and sweet solution, smelling like *brimstone* ; filtre it, and abstract all the moisture with a gentle heat, and there will distil over a liquor as sweet as rain-water, (for steel, by reason of its dryness, detains the corrosiveness of the spirit of salt, which remains at the bottom, like a blood-red mass, and it is as hot on the tongue as fire :) dissolve this blood-red mass in oil of flints, or sand, and you will see it grow up in two or three hours like a tree with stem and branches.

This author says, if you prove this tree at the test, it will yield good gold, which it draws from the oil of sand or flints ; the said oil being full of a pure golden sulphur.

*To make OIL of FLINTS or SAND.*

Take of the most pure *salt of tartar* in fine powder, twenty ounces ; small sand, flints, pebbles, or crystals in fine powder, five ounces, mix them ; put as much of this as will fill an egg-shell into a crucible ; set it in a furnace, and make it red-hot, and presently there will come over a thick and white spirit. Take out the crucible while it is hot ; and that which is in it, like transparent glass, keep from the air ; afterwards reduce it to powder, and lay it in a moist place, and it will dissolve into a thick fat oil, which is the oil of flints, sand, pebbles, or crystal.

*This oil, says the author, precipitates metals, and makes the calx there more heavy than oil of tartar doth ; it is of a golden nature, and extracts colours from all minerals ; it is fixed in all fires, maketh fine crystals and borax, and maturates imperfect metals into gold.*

TRIPOLI, } Call'd also *alana* ; a kind of chalk, or white  
TRIPOLY, } soft stone, bordering a little on red, us'd by  
*lapidaries, goldsmiths, copper-smiths, glass-grinders, &c.* in polishing their works.

Some imagine *tripoli* to be a common stone, burnt and calcin'd by the sulphureous exhalations, which happen to be under the mines where it is found.

Of these mines there are a number in divers parts of *Europe*, particularly in *Italy*, where the *tripoli* is very good. Others take it to be a native earth.

TRITON,

## T U B

TRITON, a poetical sea demi-god, held by the ancients to be an officer or trumpeter to *Neptune*, attending on him, and carrying his orders and commands from sea to sea.

The poets and painters represent him as half man, half fish, terminating in a dolphin's tail, and holding in one hand a sea-shell, which serves him for a trumpet.

But tho' mythologists speak only of one *Triton*, yet the poets have imagin'd several; giving some of them for trumpeters to all the sea-gods, particularly to *Neptune* and *Venus*.

Indeed the *Tritons* not only officiated as trumpeters in *Neptune's* retinue, but were also suppos'd to draw his chariot, i. e. the sea-shell, in which he is feign'd to ride over the waters.

It is not much to be doubted, but that the fable of the *Tritons* took its rise from sea, or mer-men; for that there are such things as sea-men, is scarce to be doubted, after what has been said under the article MERMAID.

The poets usually attribute to *Triton* the office of calming the waves, and making tempests cease; as *Ovid* in his *Metamorphoses*.

TRUCE is represented [in *Painting*, &c.] by a woman in the middle of an island in the calm sea, sitting upon a bundle of arms; she has a breast-plate like *Bellona*, a helmet on her right knee; grasps a rod, about which is twisted a wolf-fish and a mullet united, holding in her left a dog and a cat in a cord, sitting peaceably.

Her place denotes *truce* is like the calm sea, which does not last; always sitting upon arms tied together, that in time of *truce* hostilities are laid aside; the breast-plate, that in time of *truce* the care of war is in the people's breasts; the fish shew, that tho' they be mortal enemies, yet at a certain time they usually meet together; the dog and cat shew the same.

TRUTH, saith *Hippocrates*, was fram'd in the similitude and likeness of a beautiful woman, attired with gravity and modesty.

*Philostratus* tells us, that she remain'd in the cave of *Amphiaras*, of a beautiful countenance, clothed all in white garments.

*Lucianus* says, that her statue was made in the form of a young woman, habited in rags and base attire, with a superscription over her head, how she was wrong'd and abus'd by fortune.

*The TUBEROSE to paint.*

Lay on *white*, and shade with *black*, and a little *bistre* in some places, and mix a little *carmine* for the outside of the leaves, to give them a reddish tint, particularly towards the ends.

Do the seed with *masticote*, and shade it with bladder-green.

Colour the green of the leaves and stalks with *verditer*, and shade them with *iris-green*.

TUITION

## T U L

TUITION is represented [in *Painting*, &c.] by a woman in a red garment, a book of accompts under a balance in her right hand, with the motto *Computa*; in the left, the skirt of her robe, wherewith she seems to cover the nakedness of a child sleeping at her feet, over which is a lizard; a cock on the other side.

The balance and book shew, that a tutor is oblig'd to give a just account of his pupil's estate; the red denotes love and charity; the cock, vigilance, requisite to the faithful discharging of his duty; the covering, care; and the lizard watches over men, when they lie carelessly asleep.

**M** THEODORE VAN TULDEN, an engraver of all kind of subjects, us'd this mark.

TULIPS [*to paint in miniature.*] There being a great number of sorts of *tulips*, I shall omit many of them, especially the plain ones, which may be done by the directions elsewhere given, for the making of particular colours, and only touch upon those call'd striped or streaked *tulips*.

These stripes, or streaks, are laid in with *carmine*, very thin in some places, and very deep in others; and are to be finish'd with fine strokes of the same colour, which must all observe the turn of the stripes.

As for others, you may begin with *vermilion*, and proceed by mixing it with *carmine*, and finish with *carmine* only.

For others, lay *Indian-ink* upon *vermilion* instead of *carmine*.

Some again you may colour with *lake* and *carmine* mix'd together; and *lake* only, or with white, to begin with.

Those that are of a *violet purple* colour are to be done with *ultramarine* and *carmine*, or *lake*, sometimes *bluer*, and sometimes *redder*.

The manner of doing both is just the same, there is no difference, but in the colours.

A *blue* made of *ultramarine* and *white*, and sometimes a transparent *purple* is to be put in certain places; as for example, between the stripes of *vermilion*, *carmine*, or *lake*, which must be finish'd with fine hair-strokes like the rest, and scumbled into the stripes.

Those *tulips*, that have fallow *teints*, are made of *lake*, *bistre*, and *oaker*, according as they happen to be; but these are only for fine or uncommon *tulips*.

Shade such, whose stripes are *carmine*, with *indigo*.

As for those, whose stripes are colour'd with *lake*, use *black* and *white*, sometimes mixing *bistre* with it, at other times *green*.

Shade some with *gambooge* and *umber*, and always with fine hair strokes, which follow the turn of the leaf.

Those *tulips*, which are call'd edged, are all of one colour, except the border, which is white and purple.

RED



## T U R

RED with *yellow*.

YELLOW with *red*.

And RED with *white*.

Lay the *purple tulip* of this bordered sort with *ultramarine*, *carmine*, and *white*, and shade and finish with the same.

You must not touch the border, that is, you must only lay on a thin *white*, and shade it with a very thin *indigo*.

Colour *yellow tulips* with *gambooge*, and shade them with the same *oaker*, *umber*, or *bistre*. Do the edging with *vermilion*, and finish with a very little *carmine*.

*Red tulips* are laid with *vermilion*, and finish'd with the same colour, with a little *carmine* or *lake* added to it. Do the border with *gambooge*, and finish it; add *gall-stone*, *umber*, or *bistre* to the same.

*White tulips* must be shaded with *black*, *blue*, and *white*; and *Indian ink* is very proper in this case, for it shades soft, as it is of itself equal to the effects of *blue* and *white*, mix'd with other *black*. Edge these with *carmine*.

There is in all these sorts of *tulips* a nervure in the middle of the leaves, which must be made much brighter than the rest, and the edges must be scumbled into the grounds by fine strokes; for they must not seem cut or separated from the rest.

There are still others of different colours; and such as are, as it were, *black* on the inside, are to be coloured and finish'd with *indigo*, as well as the seed.

If the *tulips* have a *yellow* ground, use *gambooge*; and to finish them, add a little *umbre* or *bistre*.

The leaves and stalks of *tulips* are commonly painted with a *sea-green*, and shaded and finish'd with an *iris-green*, with broad strokes along the leaves.

Some again may be colour'd with *verditer*, mix'd with *maficote*; these you may shade with *bladder-green*, that they may have a more yellowish cast.

TURCOISE } Is a precious stone of a blue colour, ordi-

TURQUOIS } narily opake, but sometimes a little trans-

parent.

There are of these several kinds, *oriental* and *occidental*; of the *new rock* and of the *old*.

The *oriental Turcoise* partakes more of the blue tincture than the green; and the *occidental* more of the green than the blue.

Those of the *old rock* are of a deep blue, and those of the *new rock* more whitish, and don't keep their colour.

The *oriental* ones come from *Persia*, the *Indies*, and some parts of *Turkey*; and some even suppose, 'tis thence they take the modern name of *Turquoises*.

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The *occidental* are found in various parts of *Europe*, particularly *Germany*, *Bohemia*, *Silesia*, *Spain*, and *France*.

*Turcoises* all grow of a round or oval figure; they cut easily, and seals are frequently engraven on them.

The *Turquois* is easily counterfeited, and that so perfectly, that 'tis impossible to discover the deceit without taking it out of the collet.

In the *Memoirs of the Academy of Sciences*, we have a very curious account of the formation of the *Turcois*, the manner of giving it the blue colour, &c. by M. *Reaumur*.

He observes, that the *Turquois* is one of the softest of precious stones, its hardness scarce exceeding that of a crystal, or a transparent pebble; though some are much harder than others, and still the harder, *cæteris paribus*, the more valuable, by reason of the vivacity of the polish, which is always proportionable to the hardness.

*Rosnel* a jeweller, estimating the several precious stones, sets a hard *Turquoise*, whose *blue* is neither bright nor deep, on the foot of the most perfect *emeralds*, that is, on a level with a diamond. Those that have any defect he only values at a *French* crown a caract.

*Tavernier* affirms, that there are but two mines of *Turquoises* known in all the earth, and those both in *Persia*; the one call'd the *old rock*, near a town call'd *Neaburg*, three day's journey to the north-east of *Meched*; the other, call'd the *new rock*, is five day's journey.

He says the *new rock* is but little valued, and the king of *Persia* has for many years prohibited the digging in the *old rock* for any but himself. And M. *Reaumur* supposes the *old rock* to be now exhausted.

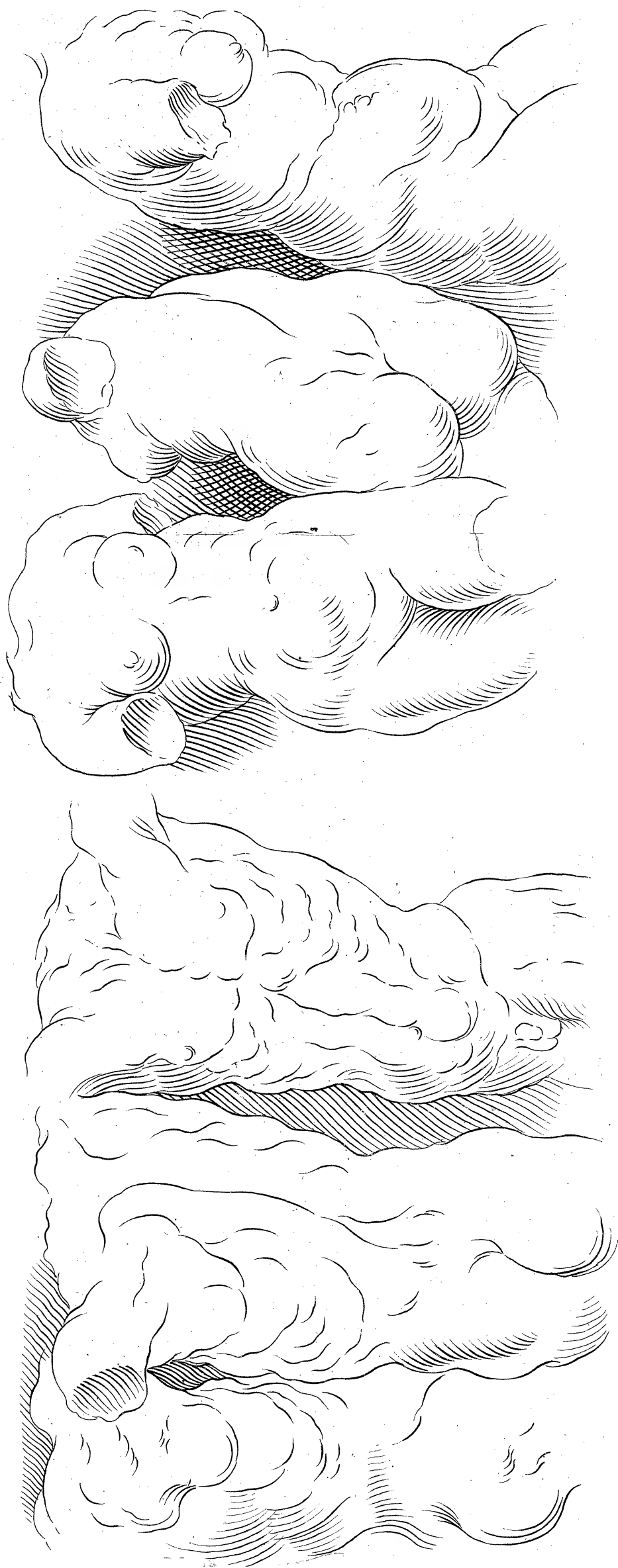
In reality, the common division of *Turcoises* into those of the *old rock* or *oriental*, and *new rock* or *occidental*, is very arbitrary and precarious.

All the best and most perfect, wherever they grow, either in *India* or *Europe*, are reckoned among the former, and the rest among the latter.

There are several considerable mines of *Turquoises* near *Simore* in lower *Languedoc*; but that fine *blue* colour admir'd in the *Turquoises* is not natural to these rocks; the prevailing colour being sometimes white, and sometimes much like that of *Tripoli* and *Venice*.

The other precious stones are dug out of the mine with all their colour, to the force whereof nothing can be added, tho' it may frequently be diminished; as we see fire bring down the too deep colour of the *sapphire*, and take that of a pale *sapphire* quite away.

These





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These *Turquoises*, on the contrary, are naturally whitish, or yellowish, of a colour as common as that of a free-stone; and by opposing them for some time to the action of the fire, they assume a blue colour.

Tho' it seems a *paradox*, yet M. *Reaumur* has made it exceeding probable, that *Turquoises* are originally the bones of animals.

In the mines of *France*, pieces have several times been found in the figure of teeth, bones of the arms, legs, &c.

And *Turquoises*, which are yet imperfect or ill-form'd, are apparently compos'd of *laminæ*, or leaves, like those of bones, between which some petrifying juice insinuating itself, binds them close together; and still the softer and more imperfect the stones are, the more distinguishable are the different directions of the fibres and *laminæ* with their intersections; and the greater resemblance they bear to fractured bones, and the less to any kind of stones known.

To give them the blue colour, they dry them a while in the air, and afterwards heat them gradually in a furnace, made after a particular manner.

If they are heated too hastily, the humidity between the *laminæ*, wanting time to evaporate all, will separate into scales or flaws.

Some of the stones require a greater degree of heat to bring them to their colour than others; and even in large pieces, several parts ordinarily require several degrees of heat.

For this reason, a great deal of care is to be taken in the heating them; for the fire, which gives them their blue by degrees, if they be expos'd beyond a certain degree, takes it away again.

M. *Reaumur* does very well account for their taking a blue colour by heat: it seems, that when they are fresh cut out of the rock, that their substance is found, sprinkled, and streak'd all over with spots, veins, little circles, &c. of a *black-blue* colour.

These he supposes to be remains of a deep *bluish* matter, which the fire spreads by rarefying them, and diffuses throughout the whole substance of the stone.

He also concludes, that this matter has been either originally the juice contain'd in the bones, since mixed and coagulated with the petrifying juice, or some other mineral matter insinuated into the pores of the stone.

The great defect of all *Turquoises* is, that in time they lose their *blue* colour, and become *green*, and then cease to be of any value.

The ancients attributed a kind of sympathetick virtue to the *Turquoise*.

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It is commonly suppos'd, that it changes colour, or breaks at the death, sickness, or even misfortune of the person who wears it; that it is disagreeable to married people, and even breaks on their fingers; that it marks all the changes and accidents that happen in the body of the wearers, by answerable changes in its colour; and for this reason the ladies have left off wearing it.

*De Bont* endeavours to account for all these effects from natural, and even probable causes.

### *The way to make Turcoise.*

The name of *Turcoise*, which this precious stone bears, comes from the place where it is found, *viz.* in *Turkey*; altho' this stone comes also from *Persia* and the *East-Indies*, where it is found in abundance, the colour whereof approaches nearer to blue than green, which also distinguishes them from those that come out of the west, which are more green and whitish.

They call the first by the name of the stone of the *old rock*, and the other by that of the *new*.

The *Turcoise* is the finest and noblest of all the opaque precious stones: its colour is composed of green, white, and blue, and imitates that of verdigrease.

Take ten ounces of natural *crystal* prepared, and *Saturnus glorificatus*; half an ounce of purified *verdigrease*, and one ounce of our prepared *zaffer*, the whole in fine powder; which mix well together in a crucible covered, with another well-luted and dried, which afterwards put into a glass-house furnace, where leave it for three hours; then twelve hours in the annealing furnace, that it may cool gently; then take out your crucible, and break it, and take out the matter, and cut and polish it, and you'll have *Turcoise*-coloured stones like those of the *old rock*.

### *The way of making Turcoise-blue, a particular colour in this art.*

For this colour take a pot-full of crystal-frit tinged with an *aqua-marine* colour, or blue, whereof we have given several preparations, which colour must be fair and full, for all depends on that: it being well-melted, put into it, little by little, sea-salt decrepitated white, and reduced to powder, mixing it well and softly, as we have noted in speaking of other metalline colours; and the blue, from clear and transparent, will become thick: for the salt penetrating the glass, takes away its transparency, and causes a paleness; hence alone comes the *Turcoise*-colour used in glass. When the colour is right to the workman's fancy, it must be presently wrought, for the salt will evaporate, and make the glass transparent and disagreeable; if in working this metal the colour fades or goes off, you must add a little more of the same decrepitated salt, as before, and the colour will return.

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We will here advertise the workman, that he must take care, that this salt be well decrepitated, otherwise it will always crackle and be apt to fly in his eyes, and endanger his sight; you must (as I have said) put in the salt in intervals, 'till the colour pleases you.

It will suffice for this use, that the frit tinged *aqua-marine*, or blue, be made of one half crystal-metal, and the other of *rochetta*, and the colour will be very fair and good.

**TURMERICK** is a root us'd by dyers to give a yellow colour. This root is yellow both within and without side, very hard, as if petrified, and not unlike either in figure or size to ginger. The leaves it produces are like those of black *bellebore*; its flowers rise in manner of a *spica*, or ear, and its fruit is rough like new chesnuts.

It comes chiefly from the *East-Indies*; though it grows also in the island of *Madagascar*.

It should be chosen large, resinous, hard to break, and heavy.

Some persons have mistakenly imagined there was a native *red turmerick*; their error was owing to this, that the *yellow* root, as it grows old, turns brown, and when pulveriz'd, reddish.

It is much us'd by glovers, &c. to dye their gloves; as also by founders, &c. to give a gold colour to their metals.

The *Indians* use it to colour their rice and other foods yellow; for which reason, it is by some call'd *English saffron*.

Our dyers don't find it gives so steady a yellow as the *luteola* or greening weed; but it is admirable for brightening and heightening the red colours dyed with *cochineal*, or *vermilion*, as scarlets, &c.

**TURNING** is a branch of sculpture, being the art of fashioning hard bodies, as wood, ivory, brass, &c. into round or oval forms in a lathe.

*Turning* is perform'd by putting the substance to be turned upon two points as an axis; and moving it round, or about on that axis; while an edg'd tool, set ready to the outside of the substance in a circumvolution of it, cuts off all the parts that lie further off from the axis; and makes the outside of that substance concentrick to the axis.

The principal instruments us'd in *Turning*, beside the lathe, are chissels and mandrils of various forms.

The invention of *Turning* seems to be very ancient. Some indeed, to do honour to the age, will have it, that it has been brought to perfection by the *moderns*; but if what *Pliny*, and some other ancient authors relate, be true, that the *ancients* turn'd those precious vases, enrich'd with figures and ornaments in relief, which are still to be seen in the cabinets of the curious; it must be own'd, that all has been added in these ages, makes



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but a poor amends for what we have lost of the manner of *turning* of the ancients.

**TURPENTINE** is a transparent gum or resin, which flows either naturally or by incision, from several fatty, resinous trees, such as *terebinthus*, larch, pine, fir, &c.

There are several sorts of *turpentine*; as that of *Chio*, that of *Venice*, that of *Bourdeaux*, that of *Cyprus*, *Strasburg*, &c.

The *turpentine* of *Chio*, which is the only genuine kind; and that which gives the name to all the rest, is a *whitish* resin, bordering a little on the *green*, very clear, and something odoriferous; it is drawn by incision from a tree call'd *terebinthus*, which grows plentifully in that island, as also in *Cyprus*, and some parts of *France* and *Spain*.

The gum ought to be chosen of a solid consistence, almost without either taste or smell, and not at all tenacious, which distinguishes it from the false *turpentine* of *Venice*, which is commonly substituted in its place, having both a strong smell and a bitter taste, and is very sticking or clammy.

This *turpentine* of *Chio* is undoubtedly the best for many uses; but the scarcity of it is the cause, that it is but little in use.

The *Venice turpentine* is falsely so call'd; for tho' there was a *turpentine* antiently brought from *Venice*, yet that, which is now so call'd, comes from *Dauphine* in *France*.

It is liquid, of the consistence of a thick syrup, and whitish; and flows either spontaneously, or by incision, from *larches*, *firs*, and *pinces*, chiefly in the wood *de Pilatze*.

That which flows naturally is call'd by the inhabitants *Bijon*, and is a kind of balm, not inferior in virtue to that of *Pern*, and is frequently substituted to it.

That which is drawn by incision, after the tree has left off yielding spontaneously, is of very considerable use in several arts, and is that of which varnish is made.

This is to be chosen white and transparent, and great caution is to be us'd that it has not been counterfeited with oil of *turpentine*.

The *turpentine* of *Bourdeaux* is white and thick as honey. It does not ooze from the tree in the form in which it is brought to us; but is properly a composition, wherein among other ingredients, is a white hard sort of resin, call'd *galipot*.

The *turpentine* of *Strasburg*, *Dantzick*, &c. is what is most commonly us'd among us, and preferr'd to that of *Venice*; from which it is distinguished by its *green* hue.

### Oil of TURPENTINE.

There are two sorts of this oil drawn from *turpentine* by distillation; the first is *white*, and the second *red*, both esteem'd as balsams: but these are both little us'd by us, and scarce to be had.

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What is commonly sold under the name of *oil of turpentine*, is only a distillation of the resin call'd *galipot*, fresh from the tree. This is us'd by painters, &c.

To be good, it should be clear and white as water, of a strong penetrating smell, and very inflammable,


TUTTY is a kind of metallick soot, thrown off from brass in the furnace, and form'd into concave flakes of different sizes and thickneses; very hard, greyish, and full of little protuberant grains, about the bigness of pins heads.

It is found adhering to rolls of earth, hung up for that purpose over the furnaces of foundries in brass, to receive the fumes of the melted metal.

### V.

**P**ERINO DEL VAGA, born in 1500, studied *Michael Angelo* and *Rafaello*, liv'd at *Genoa*, *Pisa*, *Rome*, excell'd in history and architecture, died in 1547, aged 47 years.

VAL. stands for *Valesio*, *John Lewis Valesio* of *Bologna*.

 LEWIS VALESIO of *Bologna*, painter and engraver.

His mark was also VAL.

VALOUR is represented [in *Painting*, &c.] by a man in his prime, his garment of cloth of gold, a sceptre in his right hand, a garland of laurel; and with his left stroking a lion on the head.

His virility, or man's estate, denotes the support of valour and bravery; the scepter, that pre-eminence is due to it; the laurel, his ever being in the same humour; the lion, the property of courageous men to get love of the most barbarous by their courtesy.

**N**J. VAN VELDE us'd this mark: and near the mark we read *Olyn* on landskips engraven by him.

WILLIAM VANDER-VELDE, commonly call'd *the Old*, was an extraordinary ship-painter of *Amsterdam*; coming over to *England*, he was much employed by king *Charles II.* for whom he painted several of the sea-fights between the *Dutch* and *English*. He also understood navigation extraordinary well, and is said to have conducted the *English* fleet to the burning of *Schelling*. He was the father of a master, whom no age excell'd in ship-painting; and this we owe to the father's instructions, who was an admirable draughtsman of all maritime objects. He lived at *Greenwich* to be more conversant in these things, which were his continual study; and in which king *Charles II.* and king *James II.* gave him all possible encouragement, making him their painter with a considerable salary, which afterwards was continued to his son. The father in his latter days commonly drew in black and white, on a ground prepared on canvass; to which, like paper, he gave an easy freedom to his sails and tackle; as

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also to every part of a ship due proportion with infinite neatness: for his better information in this way of painting, he had a model of the masts and tackle of a ship always before him to that nicety and exactness, that nothing was wanting in it, nor nothing unproportionable. This model was in the hands of his son *Olo Vander-Velde*, who died in *London* about forty years ago.

*VAN RHIN* in. stands for *Rembrant de Rein*.

**A** ANDREAS VANDE-VENNE *pinxit* V. V. *Delft*,  
sc. *Willielmus Delft sculpsit*.

**D** ~~X~~ **V** DIRICH-VANDER-STAREN liv'd in the year 1500. He mark'd his plates with the month and year in which they were engraven; as in that of the flood, and another where the Virgin is aloft, and *St. Bernard* at her feet, mark'd 3d of *October* 1524, and the other mark'd 1544. He likewise us'd the letter D, in which was a V.

VANITY is represented [in *Painting*, &c.] by a young girl, splendidly adorned, of a jovial countenance, painted, carries upon her head a dish with a heart in it.

*Vaunty* is that which proposes no end to its actions, and therefore to be richly clothed and painted as done to please others, for no other end but to enjoy a short pleasure, is a sign of *vanity*; it likewise discovers its heart and thoughts, having no end in its eye, and therefore the heart is visible over her head.

*Cavalier* FRANCESCO VANNI, born in the year 1563, scholar of his godfather *Arcangelo Sallimbeni*, *Fed. Zuccherò*, and afterwards imitated *Barocci*, liv'd at *Siena*, excell'd in history and religious subjects, died in the year 1610, aged 47 years.

HERMAN VARELST was elder brother of the famous *Simon Varelst*; he painted history, fruit, and flowers, after a manner very pleasant and well-coloured. He educated several sons and one daughter in the same way of drawing. He studied some time at *Rome*, and resided in the emperor's court at *Vienna*, which city he left upon the *Turks* coming before it in 1683. He died at *London* 40 years ago, and lies buried in *St. Andrew's Holborn*.

VARNISH } is a thick, viscid, shining liquor, used by *paint-*  
VERNISH } *ers*, *gilders*, and various other artificers, to give a gloss and lustre to their works; as also to defend them from the weather, dust, &c.

There are several kinds of *varnishes* in use; as the *siccative* or drying *varnish*, made of oil of *aspin*, *turpentine* and *sandarach* melted together.

White *varnish*, call'd also *Venetian varnish*, made of oil of *turpentine*, fine *turpentine* and *mastic*.

Spirit of wine *varnish*, made of *sandarach*, white *amber*, *gum elemi* and *mastick*; serving to gild leather, picture-frames, &c. withal.

Gilt

## V A R

Gilt *varnish*, made of *linseed oil*, *sandarach*, *aloes*, *gum gutta* and litharge of gold.

*China varnish*, made of *gum lacca*, *colophony*, *mastic*, and spirit of wine.

Common *varnish*, which is only common *turpentine*, dissolved in oil of *turpentine*.

*To choose Spirits.* To make *varnish*, you must have spirit of wine, which must be strong, or else it will spoil the *varnish*, and not dissolve the gums; the stronger the spirits are, the better will the *varnish* prove. To try the spirits, put some into a spoon that has *gunpowder* in it, set fire to it as you do to *brandy*, and if it burns so long as to fire the *gunpowder*, 'tis fit for use.

*To choose Seed-Lack.* The best is that which is large grain'd, bright and clear, freest from sticks and dross.

*Gum Sandarach.* The best is the largest grain'd and whitest, let it be as clear from dust as possible.

*Gum Animæ.* The whitest, clearest, and most transparent, is the best.

*Venice Turpentine.* The clearest, finest and whitest is the best.

*Of Rosin.* There are two sorts, the white sort should be very white and clear. Of the common sort, the best is clarified and transparent.

*Gum Copal.* The best is the whitest, as free from dross as you can get it. It is a thick whitish heavy gum, seldom without dross.

*Gum Elemi.* The best is the hardest, whitest, and clearest from dross; it is brought over commonly in the bark of a tree.

*Gum Benjamin.* The best is that of a bright reddish colour, like clarify'd rosin.

*Isinglass.* The best is the clearest and whitest.

*Gum Mastick.* The best is the whitest, largest grain'd, clear and free from dross.

The *Dutch* rushes and *Tripoly*, are to be had at the *iron-mon-gers*. The brushes and common *size*, always ready made at the *colour-shops*.

WHITE VARNISH } From a manuscript of Mr. Boyle.

AMBER VARNISH } Take white rosin four drachms, melt it over the fire in a clean glaz'd pipkin, then put into it two ounces of the whitest amber you can get (finely powder'd.) This is to be put in by a little and a little, gradually, keeping it stirring all the while with a small stick, over a gentle fire, till it dissolves, pouring in now and then a little oil of *turpentine*, as you find it growing stiff; and continue so to do till all your amber is melted.

But great care must be taken not to set the house on fire, for the very Vapours of the oil of *turpentine* will take fire by heat

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only; but if it shall happen so to do, immediately put a flat board or wet blanket over the fiery pot, and by keeping the air from it, you will put it out, or suffocate it.

Therefore it will be best to melt the *rosin*, in a glass of a cylindrick figure, in a bed of hot sand, after the glass has been well anneal'd or warm'd by degrees in the sand, under which you must keep a gentle fire.

When the *varnish* has been thus made, pour it into a coarse linnen bag, and press it between two hot boards of oak or flat plates of iron; after which it may be used with any colours in painting, and also for *varnishing* them over when painted.

But for covering gold, you must use the following *varnish*: this is to be observ'd, that when you have *varnish'd* with white *varnish*, you may put the things *varnish'd* into a declining oven, which will harden the *varnish*.

*A hard Varnish, which will bear the muffle (from a manuscript of Mr. Boyle's) for laying over any metal, that appears like gold, to prevent it from turning black, which all but gold will be apt to do, when expos'd to the air.*

Take of *colophony*, which is to be had at the *Druggists*, an ounce; set it over the fire in a well-glaz'd earthen vessel, till it is melted; then by little and little, strew in two ounces of powder of *amber*, keeping stirring it all the while with a stick; and when you perceive it begin to harden or resist the stick, then put in a little *turpentine* oil, which will thin and soften it immediately; then put in two ounces of *gum copal* (finely powder'd) sprinkling it in as you did the *amber*, ever and anon pouring in a little oil of *turpentine*; and when it is done, strain it as before directed.

This is proper to *varnish* over gold, and the things done with it, must be set into a declining oven, three or four days successively, and then it will resist even the fire.

*A Varnish for brass, to make it look like gold.*

This is used upon leaf-gold, or upon that which is call'd *Dutch* or *German* leaf-gold, or upon brass or bath-metal, which are design'd to imitate gold.

Take two quarts of spirit of wine, and put it into a retort glass; then add to it an ounce of *gambooge*, two ounces of *lake*, and two ounces of *gum mastic*; set this in a sand-heat for six days, or else near a fire, or you may put the body of the retort frequently into warm water, and shake it two or three times a day; then set it over a pan of warm small-coal dust. Before you lay this *varnish* over the metal, to be sure you see that it has been well clean'd; *varnish* it over thinly with this *varnish*, and it will appear of the colour of gold. Set it in a declining oven to harden, and it will not rub off.

N.

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N. B. This is a good *varnish* to mix with any colours that incline to red, and the white *varnish* for mixing with those that are pale.

### *A Varnish for wood, paper, &c.*

The *Japanese* have a method of making plates, bowls, and other vessels of brown paper, and sometimes of fine saw-dust; which vessels are very light, and very strong, which by reason they are not liable to be broken by a fall as *China* ware or *porcelaine* made of earth, are much esteem'd with us. The method of making them is as follows.

Take brown paper, boil it in common water, stirring and mashing it all the while with a stick, till it is almost become a paste; then take it out and pound it well in a stone mortar, till it is reduc'd to a soft pappy consistence, like rags for paper-making; then with common water and *gum arabic*, a quantity sufficient to cover this paper-paste an inch, put these together in a well-glaz'd pipkin, and boil them well, keeping continually stirring them, till the paste is well impregnated with the *gum*: then is your paste fit for making any form you design.

Having the mould ready made, as suppose any thing of the figure of a plate, you must have hard wood turn'd on one side of such a figure, with a hole or two in the middle, quite through the wood, to let any water pass through that is press'd out of the paste; which mould must be concave, and in the middle in the form of the underside of a plate, also another piece of hard wood must also be turn'd convex in the middle, and in the form of the upper side of a plate; this must be about the eighth part of an inch less than the under mould: but about the rim or the edge, you may, if you please, have some little ornament carv'd or engraven in the wood.

These moulds must be well oil'd on the turn'd sides, as soon as they are made, and must be continued oiling, till they have been thoroughly drench'd with oil; and oil them well again just before you use them, to prevent the gumm'd paste from sticking to the wood. Set the under mould upon a strong table even, and spread it over with some of your paste as evenly as you possibly can, so as to be every where of an even thickness of about a quarter of an inch; then having oil'd the upper mould, and put it as exactly as may be on the paste, press it hard down, setting a great weight upon it; letting it remain in that state for twenty-four hours.

When you suppose the paste to be dry, take it out of the moulds; and when it is thoroughly dry, it will be as hard as wood, and be fit to lay a ground upon, made with strong size and lamp-black, letting it dry gently; and when that is thoroughly

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roughly dry, mix ivory-black with the following *varnish*, and use it as hereafter directed.

### *A strong Japan Varnish.*

Take an ounce of colophony, and melt it in a well-glaz'd earthen vessel; then having three ounces of amber finely pulveriz'd and sifted, put it in by little and little, adding now and then some spirit of turpentine. When it is thoroughly melted, sprinkle in three ounces of sarcocolla, keeping it all the while stirring, putting in frequently more spirit of turpentine, till all is melted, and well incorporated; then strain it through a coarse hair bag, plac'd between two hot boards, and press it gently, receiving the clear into a well-glaz'd pot, made warm. With this varnish mix the ground ivory-black, and having first warm'd the vessel made in the mould, whatsoever form it is, plate, bowl, &c. lay it on before the fire in a warm room, that the air may not chill the *varnish*: lay it on equally, and then set it into a gentle oven; and the next day into a hotter, and the third day into one that is very hot, letting it stand in it till the oven is quite cold, and then it will be fit for any use, either for liquors cold or hot, and will never change, nor can be broken but with great difficulty.

As for the moulds, it is probable they might do as well if they were cast of any hard metal, as if turn'd of wood.

You may also make what things you please of fine saw-dust, by drying it well, and pouring on it some turpentine; having an equal quantity of rosin melted with it, and half the quantity of bees-wax, mix them well together, and put them to the dry saw-dust, stirring all together till the mixture becomes thick as a paste; then take it off the fire, and having warm'd your moulds, spread some of the mixture on the under mould, that has a hole in the middle, as equatly as possible, and press the upper mould upon it, as before; let it stand to cool, and your vessel will be fit for painting.

There may, if you please, be some sarcocolla finely powder'd, put into this while your turpentine is melting, to the quantity of half the turpentine; stirring it well, and it will harden it: this *varnish* will most safely be made in the open air, because it will endanger the house, and have a wet cloth ready to put it out, if it takes fire.

But which-ever of the mixtures you use, if you have a mind to have them appear like gold, do them over with gold fize, and when that begins to stick a little on the finger, lay on leaf-gold, either real gold, or that which is brought from *German*; but the last is apt to change green, as most of the preparations from brass will do. Such as those which are call'd bath-metal, and others of the like sort, which appear like gold, when they are



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are fresh polish'd, or clean'd every day; but as the air coming upon them will make them alter to another colour, gold itself is rather to be chosen, which is durable, and will never change, and is also a much finer colour than any of the former for a continuance.

And altho' the leaf-gold is tender, and may be supposed to be liable to rub off, yet the *varnish*, with which it is to be *varnish'd* over, will keep it bright and intire.

When the leaf-gold has been laid on, and the flying pieces brush'd off, which is not to be done till the gold size is dry; then *varnish* it over with the following *varnish*.

*Varnish for gold, or such leaf of metals that imitate gold.*

Take colophony, and having melted it, put in two ounces of amber finely powder'd, and some spirit of turpentine, and as the amber thickens, keep it well stirring; then put in an ounce of gum elemi, well pulveriz'd, and more spirit of turpentine, constantly stirring the liquor till all is well mix'd and incorporated: but take care however to use as little turpentine as you can; because the thicker the *varnish* is made, the harder it will be. Let this be done over a sand-heat, in an open glass, then strain it, as is directed for the preceding *varnish*. This *varnish* is to be used alone; first warming the vessels made of paper-paste, and lay it on with a painting brush before the fire, but not too near, lest the fire raise it into blisters. After this has been done, harden it three several times in ovens; first with a slack heat, the next with a warmer, and the third with a very hot one; and the vessels will look like polish'd gold.

And as for such vessels, &c. as shall be made with saw-dust and gums; the *varnish* may be made of the same ingredients as above-mention'd, except the gum elemi; and this will dry in the *Sun*, or in a gentle warmth.

*To varnish of a red colour.*

After what you would *varnish* has been prepar'd as before, and is thoroughly dry, mix vermilion with the third *varnish*, and use it warm; then stove it, or harden it by degrees in an oven; and it will appear very glossy, or else lay on your first ground with size and vermilion, and in proper places you may stick on with gum arabick, and water some figures cut out of prints, as little sprigs of flowers, or such like; and when they are dry, paint them over with gold size, and let that remain till it is a little sticky to the touch; then lay on your gold, and let that be well clos'd to the gold size, and dried. See the *article* GILDING. Then if you would shade any part of your flower, take some ox-gall, and with a fine Camel's-hair pencil, trace over the shady parts on the leaf-gold, and with deep *Dutch* pink; and when that is dry, use your *varnish* in a warm place

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(I mean that *varnish* directed for the covering of gold) and set it to harden by degrees in an oven, which *varnish* will secure the leaf-gold; altho' it be only that call'd *Dutch* gold, or metal, from changing by keeping the air from it.

*Varnishing any thing which is covered with leaf-silver.*

First paint the things over with size, and ground chalk or whiting; let them stand 'till they are thoroughly dry, and then do them over with very good gold size, of a bright colour: (for there is much difference in the colour of it; some being yellow, and others almost white; the first is most proper for gold, and the last for silver.) When this size is almost dry, that it will just stick a little to the touch, lay on the leaf-silver, and close it well to the size. See the article GILDING.

*A Varnish for covering Silver.*

Melt in a well-glaz'd pipkin some fine turpentine, and put in three ounces of white amber finely powdered, (more or less, according as the quantity your work will require) put it in by little and little, keeping it continually stirring, adding by degrees some spirit of turpentine 'till all the amber is dissolved; and then add to it an ounce of *sarcocolla* well-beaten, and an ounce of *gum-elemi* well levigated, adding now and then a little spirit of turpentine, 'till all is dissolved: do this over a gentle fire, and keep it constantly stirring.

This *varnish* will be white and strong as the former, and is to be used warm, and hardened by degrees in an oven, as varnished gold, and it will look like polished silver.

*Varnish for wood to mix with several colours.*

Take spirit of turpentine, and dissolve it in a little *gum tacamahacca* over the fire, 'till it is a little thickened; and this may be used with any colour, that has been well ground with water, and afterwards reduced to a fine powder. When the work is done, you may, if you please, varnish over your piece with the same *varnish* directed for silver and wood, tables, tea-boards, or any thing else may be done in the same manner, as is directed for vessels made of the paste of paper and saw-dust.

*Varnishing Prints, &c. with white Varnish, so as to bear water and polishing.*

The print should be first pasted either on board or shock cloth, strained on a frame; in order to do this well, prepare some stiff starch; and with a sponge dipt in water, or thin starch (without any blue in it) wet the back of your print: and if you design to lay it on a board, dip a large brush in thick starch, and brush it over the board as even as possible, and let it dry (or you may lay a ground of whiting and size on the board first, which will do very well) then repeat it a second time, and so continue 'till the veins or grain of the wood is quite filled.

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In the last operation, when the starch is just laid on, lay the wet print upon it, as smooth as possible, that there may be no wrinkles nor bubbles in it, and press it on close every where, 'till it lies smooth, and so set it by to dry; which it will be, and fit to varnish in twenty-four hours, with the following *varnish*:

Take *Ichthyocolla*, or *fish-glue*, or *ising-glass*, two ounces, and after you have pulled it into small pieces, boil it in a pint of brandy, or strong spirits, in a well-glaz'd earthen vessel, 'till it comes to a strong glue, which you may know by taking out a little, and exposing it to the air; it is then fit for your purpose, but don't fail to make it as strong as you can.

And while it is hot, with a large brush, brush over the print as quick as you can, and as smooth and even as may be; set it by for a day or two, and then do it over again with the same *varnish* or glue, and let it dry again very well; then brush it over with white *varnish* at such a distance from the fire, that it may not blister. Repeat this two or three times; then let it stand for a day or two, and then varnish it over again with the white *varnish* the third time, with two or three passages of the brush; then let it stand for three or four days, and it will be hard enough to be polished, which is to be done with a soft linnen cloth and some *Tripoli*, rubbing it very gently, 'till it is as smooth as may be, and afterwards clear it with flour and oil, and then it will appear as clear as glass; and if at any time it is sullied with fly-shits, you may clean it, by washing it with a sponge and water.

### *The white Varnish.*

Take *gum sandarach*, of the clearest and whitest sort, eight ounces; *gum mastick*, of the clearest sort, half an ounce; of *sarcocolla*, the whitest, three quarters of an ounce; *Venice* turpentine, an ounce and a half; *Benzoin*, the clearest, one quarter of an ounce; white rosin, one quarter of an ounce; *gum animæ*, three quarters of an ounce: let all these be dissolved, and mix'd in the manner following;

Put the *sarcocolla* and rosin into a little more spirits than will cover them to dissolve; then add the *Benzoin*, *gum animæ*, and *Venice* turpentine, into either a glass or glaz'd earthen vessel, and pour on as much spirits as will cover them an inch; then put the *gum mastick* into a glass or glaz'd vessel, and pour strong spirits upon it, covering it also about an inch thick, to dissolve it rightly; then put your *gum elemi* in a distinct vessel as before, and cover it with spirits to dissolve.

For this purpose, you need only break the rosin a little, and powder the *gum animæ*, *sarcocolla*, and *benzoin*.

Let all stand three or four days to dissolve, shaking the glasses, &c. two or three times a day, and afterwards put them all together

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gether into a glaz'd vessel, stirring them well, and strain the liquor and gums gently, beginning with the gums, through a linnen cloth.

Then put it into a bottle, and let it stand a week before you use it, and pour off as much of the clear only, as you think sufficient for present use.

*To paste prints upon cloth for Varnishing.*

If the print be put upon a shock cloth, well strained in a frame, brush the cloth over with strong paste, made with flour and water; and immediately brush over the back of the print with well-prepar'd starch, and then brush the cloth over with the same starch, and lay on the print as smooth as possible, without leaving any wrinkles or bubbles in the paper. This you should take notice of, that when you have laid your paper upon the cloth, they will both together appear flagging and untrained; but as soon as they are dry, all will be smooth, as either of them was at first.

Let them stand so in a dry warm place for a day or two, and then you may *varnish* your print as before directed, with glue made of *Ichthyocolla*, and then with the white *varnish*.

With this *varnish* you may mix up any colour, that has been ground dry, with a marble, and paint it upon any figure you have drawn, or upon any print you have pasted upon your work; but the *varnished* colours should be chiefly put upon the shady.

*Varnish made with seed lacca.*

Take a quart of strong spirit of wine, put into a glass vessel, and put to it six ounces of *seed-lacca*, and let them stand together for two days, shaking them often; then pass it through a jelly-bag, or a flannel-bag, made like what is called *Hippocrates's* sleeve, letting the liquor drop into a well-glaz'd vessel, and giving the gums a squeeze every now and then. When the *varnish* is almost out of the bag, add more, and press it gently 'till all is strained, and the dregs remain dry.

Be sure you do not throw the dregs into the fire, for they will endanger setting the house on fire.

Put the *varnish* up in a bottle, and keep it close stopp'd, setting it by, 'till all the thick parts are settled to the bottom, which they will do in three or four days; then pour off the clear into a fresh bottle, and it will be fit for use.

As for *varnish* made of *shell-lacca*, it is not of any great service, tho' so often recommended, for it will not bear the polish.

When you lay on your *varnishes*, take the following method;

1. If you *varnish* wood, let your wood be very smooth, close-grain'd, free from grease, and rubb'd with rushes.

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2. Lay on your colours as smooth as possible, and if the *varnish* has any blisters in it, take them off by a polish with rushes.

3. While you are *varnishing*, keep your work warm, but not too hot.

4. In laying on your *varnish*, begin in the middle, and stroke the brush to the outside, then to another extreme part, and so on 'till all be covered; for if you begin at the edges, the brush will leave blots there, and make the work unequal.

5. In fine works use the finest *Tripoli* in polishing: do not polish it at one time only, but after the first time, let it dry for two or three days, and polish it again for the last time.

6. In the first polishing you must use a good deal of *Tripoli*, but in the next a very little will serve; when you have done, wash off your *Tripoli* with a sponge and water; dry the *varnish* with a dry linnen rag, and clear the work; if a white ground, with oil and whiting; or if black, with oil and lamp-black.

VARNISH [*with Potters, &c.*] is a sort of shining plaister, with which potters-ware, *Delft*-ware, *China*-ware, &c. are covered, which gives them a smoothness and lustre: melted lead is the *varnish* us'd for the first, and *smalt* for the second.

VARNISH [*with Medalists*] is also a name given to the colours, which antique medals have got in the earth.

The beauty, which nature alone is able to give to medals, and art has never yet attain'd to counterfeit, enhances the value of them; that is the colour, which certain soils (in which they have a long time lain) tinges the metals withal; some of which are *blue*, almost as beautiful as the *Turquois*; others with an inimitable *vermilion* colour; others with a certain shining polish'd brown, vastly finer than *Brasil* figures.

The most usual *varnish* is a beautiful *green*, which hangs to the finest strokes without effacing them, more accurately than the finest enamel does on metals.

No metal but brass is susceptible of this; for the *green* rust, that gathers on silver, always spoils it; and it must be got off with vinegar or lemon-juice.

Falsifiers of medals have a false or modern *varnish*, which they use on their counterfeits, to give them the appearance, or air, of being antique. But this may be discovered by its softness, it being softer than the natural *varnish*, which is as hard as the metal itself.

Some deposite their spurious metals in the earth for a considerable time; by which means they contract a sort of *varnish*, which may impose upon the less knowing; others use *sal-armoniac*, and others burnt paper.

VARNISH for Glass.

Take oil of *turpentine* six ounces, *Venice turpentine* three ounces,  
gum

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*gum bederæ*, i. e. *gum of ivy* (or rather *mastich*) one ounce, put them into a glass-bottle, stop it well, and wax it, that no vapours may come forth; then dissolve it in *balneo mariæ*, which will be done in about two hours time.

### *An useful Varnish.*

Take drying linseed-oil, set it on the fire, and dissolve it in some good rosin, or (which is better, but dearer) *gum-lacca*; let the quantity be such as may make the oil thick as a balsam. When the rosin or gum is dissolved, you may either work it of itself, or add to it some colour, as verdigrease, for a green; or amber, for an hair-colour; or indigo and white, for a light blue.

This will secure timber-work done over with it, equal to painting with colours in oil, and is much more easy to obtain; for linseed-oil and rosin are more easily melted together by boiling, than colours can any ways be ground; and being of the consistence of a balsam, works very readily with a brush, and of itself, without the addition of colours, bears a body sufficient to secure all manner of timber-work, equal to most oil-colours.

In the working of it, there's no great skill required, if you can but use a painter's brush; only let the matter you lay it on be thoroughly drenched, that the outside may be glazed with it: and if you desire a colour on the outside, you need only grind a colour with the last *varnish* you lay on.

### *General Rules to be observed in Varnishing.*

Let your wood be close-grain'd, exempt from all knots and greasiness, very smooth, and well rush'd. You must work in a room with a good fire, because your work must be always warm, but never put it so near the fire as to scorch it, or make it quite hot; for that will blister and crack it, which is a damage can never be repaired. When you lay the grounds, warm your work before every wash, and keep it in a gentle heat always, while 'tis drying. When 'tis ready for the pictures, rub the wrong side of the prints with starch, and fix them on as flat as possible, that there may be no blisters, nor any part which is not fix'd down close with the starch; otherwise the edges will be apt to rise, and will always lie rough. When they are dry'd on, pass them over with a small pencil dipt in common size (which you must have ready melted) to secure the colours from running; when that is dry, you may begin to *varnish*.

When you begin the *varnishing* stroke, fix your brush in the middle of the work, and with a quick steady hand, draw it to the other end. Then fix it again on the place you begun at, and draw it to the other end; thus you must do 'till it is all *varnished*. The reason for this caution is, that if you drew your pencil from end to end, the brush being over-charg'd at first, the

the



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the *varnish* wou'd run over the edges of your work. Never pass your brush twice over the same place while 'tis wet, for that will make it lie rough.

Stroke your brush once or twice against the side of the pot, every time you dip it to take *varnish*, that it may not be too full: for the thinner you lay on the *varnish* (each time) the smoother it will be, and not so liable to speck and bubble. Continue *varnishing* 'till the ground and pictures lie even; that is to say, that the ground be as high as the prints, and it all looks smooth and even. You must not omit *varnishing* it once every day 'till it is finished; then let it lie three weeks, or a month, before you polish it.

*To polish.* There are three several ways to polish, which I shall give you all. First is, a pumice-stone steeped and melted in water; smear your work with it, and rub it with felt, 'till all the strokes of the pencil disappear; then wash it off with cold water, and wipe it off with a soft cloth or muslin.

The second is, the dust which comes from sawing of stones, finely sifted, and us'd like the pumice-stone.

The third is with *tripoli*. Wrap a piece of very fine old linen about your fore-finger. Dip it in water, then into the *tripoli*, which must be scrap'd with a piece of glass, or otherwise reduced to a very fine powder, without the least grittiness, for that would ruin all. Let your hand be moderately hard, and very even in all your polishing strokes. Polish and brighten one place, as much as for that time you intend to do, before you pass to another.

Remember not to polish your work, as smooth as you intend at one time: but let it rest two or three days, and then give it the finishing stroke. Take a large quantity of *tripoli* for the first polishing, 'till it begins to become smooth; the second time a small quantity will suffice. Let your endeavours be chiefly to polish the ground; for that being plain, will shew all faults the more.

To clear it up, wash off the *tripoli* with a sponge and water, and wipe it dry with a fine soft cloth: mix oil and lamp-black together, and with that anoint your work all over. Then take another soft cloth, and with a nimble quick stroke, and a hard hand, take the oil entirely off, and you will find it answer the pains you have been at.

This way of clearing serves for all but the white and yellows, where instead of lamp-black, you must mix fine flower with the oil. And in the polishing, your hand must not be so heavy as in polishing other colours.

### *To make Gold Size.*

Take of *gum-anima* half an ounce, *gum-asphaltum* half an ounce, *litharge of gold* a quarter of an ounce, *red-lead* and *brown-umber*,



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*ber*, of each a quarter of an ounce; put all these into a new earthen pipkin, that holds one third more than you put in: put in half a quarter of a pint of linseed-oil, and a quarter of a pint of drying oil. Set the pipkin over a gentle fire, that does not flame out in the least; let it but just bubble up, or almost boil, for should it run over, it would fire the chimney. As soon as it begins to bubble or boil, keep stirring it with a stick 'till the gums are all melted thoroughly, and that it becomes thick and ropy like treacle, then 'tis boil'd enough. Take it off the fire, and when the extremity of the heat is over, then strain it through a coarse linnen cloth into another earthen pot, there to cool and lie ready for use. When you use it, put some of it into a muscleshell, with as much oil of turpentine as will dissolve the size, and make it as thin as the muddy part of the *seed-lac varnish*: hold it over a candle, and when melted, strain it through a linnen rag into another shell; add to it as much vermilion as will make it of a darkish red.

Draw the figure or pattern, which you design to gild, after the ground of your work is laid; then with a pencil, proportioned to the work, lay the size neatly on those places you intend to gild, and no other. Let it stand 'till it is so dry, that when you touch it with your finger it may be glutinous and clammy, and stick a little; but not so moist, that the least spot or speck should come off with your fingers, not unlike to thick glue when 'tis half dry. When it just answers this description, take a piece of wash-leather, rap it round your fore-finger, and dip it into your gold-dust (which you must have ready in a paper) and rub all over where the gold size is laid. If any should be sprinkled about your work, sweep it into the paper again with a clean pencil that has been us'd. When your gold is dry, secure it with the following *varnish*:

*The securing Varnish to be used only in gold work.*

Take of the best *Venice turpentine*, as much as you please, put it into a pipkin that will hold double the quantity you put in; set it over a clear gentle fire, and be cautious it does not boil over. When it boils, which must be very gently, keep it always stirring with a stick 'till it is boil'd enough, which you may know by pouring some on the ground; for when 'tis cold, it will crumble into powder between your fingers. When it is sufficiently boil'd, let it cool, and keep it for the following use.

Take a quarter of a pint of the clearest *seed-lac varnish*, and one ounce of the *turpentine* finely powder'd; put them into a double glass-vial, large enough to contain twice as much; stop it close, and set it over a very gentle fire, that it heat leisurely, to prevent the bottle's breaking. When it is very hot, the danger is past: let it just bubble up for a little time; then take it off,

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off, and unstop the bottle, shaking it well: stop it again, and set it on the fire to bubble as before. Let it continue 'till the *turpentine* be dissolv'd to the bigness of a large pea, that being the dross, will not incorporate with the rest; take it off, and let it stand two days to settle, pour it off clear, and keep it for use. As this is only to secure the gold, you must be very careful in laying it on, that it touch not the least part of your ground, nor any thing but the gold. If there are colours mix'd amongst it, finish it up with the white *varnish*. If the design be all gold, finish it with the following *varnish*.

N. B. *The Gold must be pass'd over twice or thrice with the securing Varnish.*

### *The finishing Varnish for gold-work.*

Take one pound of *Venice turpentine*, three pints of water; put them into an earthen pipkin, big enough to hold twice the quantity; place them over a gentle fire, and let it warm by degrees 'till it begins to bubble up: then keeping it always stirring with a stick, that it may boil leisurely for some time, pour some of this liquor on the ground; and when it is cold, if it crumbles to powder in your fingers, it is boil'd enough. Set it by 'till it is cool enough to take into your hands, and squeeze the water entirely out of it; then make it into a ball, and after a day or two beat it into fine powder for your use; set it in a very dry place, but not near the fire, for that will melt it. Put one ounce of this powder'd *turpentine* to half a pint of the best *seed-lac varnish*; put it in a bottle that will hold twice as much close stopp'd; when it has stood some time on a gentle fire, take it off, unstop, and shake it. Continue this 'till the *turpentine* be dissolved to the bigness of a large pea; set it by two days to cool and settle, then pour off the clearest for your work. Six or eight times *varnishing* will do, but you must use your own judgment according to the colour of the gold. Let it stand three weeks or a month before you polish.

GIORGIO VASARI born in the year 1514, scholar of *Michael Angelo* and *Andrea del Sarto*, liv'd at *Pisa, Bologna, Florence, Venice, Naples, Rome, &c.* excell'd in history, portraits and architecture, died in the year 1578, aged 64 years.

V. C. signifies *Vincenzio Caccianemici* a nobleman of *Bologna*, and painter.

V. C. V. a mark used by an antient engraver in a *St. Bartholomew* and a *St. George*.

TITIANO VECELLI *da CADORE* born in the year 1477, scholar of *Gio Bellini* and *Giorgione*, liv'd at *Venice*, excell'd in history-painting, portraits and landskips, died in 1576, aged 99 years.

## V E N

**veneering** } Is a kind of marquetry or inlaying; by which  
 **vaneering** } several thin slices or leaves of fine woods  
of different kinds are apply'd and fasten'd on a ground of some  
common wood.

There are two kinds of inlaying; the one, which is the most common and more ordinary, goes no farther than the making of compartments of different woods; the other requires much more art, in representing flowers, birds, and the like figures.

The first kind is properly call'd *veneering*; the latter is more properly call'd *marquetry*, which see.

The wood used in *veneering* is first saw'd out into slices or leaves about a line in thickness, (*i. e.* the twelfth part of an inch:) in order to saw them, the blocks or planks are plac'd upright, in a kind of sawing-press.

These slices are afterwards cut into narrow slips, and fashion'd divers ways, according to the design propos'd; then the joints having been exactly and nicely adjust'd, and the pieces brought down to their proper thickness, with several planes for the purpose, they are glued down on a ground or block with good, strong *English* glue.

The pieces being thus jointed and glued, the work, if small, is put in a press; if large, 'tis laid on a bench cover'd with a board, and press'd down with poles or pieces of wood, one end of which reaches to the cieling of the room, and the other bears on the board.

When the *glue* is thoroughly dry, it is taken out of the press and finish'd; first with little planes, then with divers scrapers, some of which resemble rasps, which take off the dents, &c. left by the planes.

After it has been sufficiently scrap'd, they polish it with the skin of a sea-dog, wax and a brush, or polisher of shave-grass: which is the last preparation.

 **JULIO CESARE VENENTI**, an engraver of *Bologna*, used this mark.

**VENERATION.** *Admiration* begets *esteem*, and *esteem* *veneration*, in which the eye-brows will be depress'd in the same manner as in *esteem*; the face will be also bowed downward, but the eye-balls will be more turned up under the brows.

The mouth will be open, and the corners drawn back but a little lower than in that of *esteem*.

This depression of the mouth and eye-brows indicates a submission and respect of the soul to an object that she believes to be above her: the eye-ball turned upwards seems to intimate the elevation of the object considered, which it acknowledges to be worthy of *veneration*.

But

## V E R

But if the *veneration* is caus'd by an object that claims our *faith*, in that case all the parts of the visage will be lower depress'd than in the former action.

The eyes and mouth will be clos'd; shewing by this action, that the exterior senses have no part therein.

As to the posture of the body it shall be more bowed in *veneration* than in *esteem*, the arms and hands almost joined, the knees on the ground, and all the parts of the body shall indicate a profound respect.

But in an action which shews *faith*, the body may be bowed intirely down; the arms folded, and joining to the body; the hands crossed the one over the other, and the whole posture ought to shew a profound humility.

**VENUS.** *Horace* and *Virgil* represent the chariot of *Venus* as drawn by two white swans, which *Statius* says are attributed to her, as being most mild, innocent, and harmless.

*Pausanias* describes her as drawn in a coach through the airy passages by two white doves, which are called the birds of *Venus*.

The ancients represented her in the form of a most beautiful and young woman, standing upright in the shell of a large fish, drawn by two strange fishes.

She is also depicted with yellow hair, clad in a black, scarlet, or dun-coloured robe.

*Praxiteles*, an excellent statuary of the island of *Gnidos*, made her image naked, without any clothes, and the same was done by the *Grecians*.

*By this was intimated, that all licentious and libidinous persons, by reason of their inordinate lusts, were like beasts, depriv'd of sense, and left as it were naked, and despoil'd of reason and understanding; and oftentimes also stripp'd thereby of their riches, goods, and estates.*

*Lactantius* tells us, that the *Lacedæmonians* made the image of *Venus* arm'd like a warrior, holding in the one hand a spear, and in the other a shield or target.

*This they did on account of a certain victory, which the Lacedæmonian women obtain'd over their enemies, the people of Messenia; which success, they imagined, proceeded from the power and assistance of Venus, as inspiring the hearts of these women with courage, stoutness, and resolution.*

**VERDEGRIS** } Is a kind of rust of copper, of considerable use in painting for a *green* colour.

**VERDEGREASE** }

It is a preparation made of plates of copper, and the husks of grapes well-saturated with wine, put up in earthen pots, and dispos'd *layer upon layer*, i. e. first husks and then copper; and this repeated 'till the vessel is moderately fill'd.

## V E R

These pots are afterwards set in a cellar, where they are let to stand some time, and then taken out, to gather the *verdegrease*, which is a green rust, with which the plates are covered all over.

The greatest part of the *verdegrease* us'd in *Europe*, comes from *Languedoc* in *France*, being made of the husks of the grapes of that country, and is brought over in cakes of about twenty-five pound weight.

The *crystalliz'd verdegrease*, or *crystals* of *verdegrease*, or *calcin'd* or *distill'd verdegrease*, is *verdegrease* dissolv'd in distill'd vinegar, and afterwards filter'd, evaporated, and crystalliz'd in a cellar. This is us'd by painters to make a green colour, especially in miniature; it makes a beautiful transparent green for jappanning on glass, being ground with *oil of turpentine*, and mix'd with common varnish, and leaf-gold or silver laid on the backside of it.

This commonly comes from *Holland*, or *Lyons* in *France*, and on sticks in form like our sugar-candy. To be good, these crystals must be beautiful, clean, and transparent, very dry, and as free from sticks as possible.

*Crystals* of *verdegrease* are likewise made by dissolving *copper*, granulated in spirit of nitre, and afterwards evaporating to a scum or pellicle, and setting it in a cellar to crystallize.

*Verdegrease* is the plague of all colours, and enough to spoil a whole picture in oil-painting, if the least part of it enters into the priming of the cloth, yet 'tis a beautiful and agreeable colour; sometimes 'tis calcinated to take off its malignity; but 'tis dangerous to calcinate, as well as *red arsenick*; and let it be ever so well purified, it must be used alone, for it will spoil all the colours that are mix'd with it.

It is made use of, because it dries very much; and only a little of it is us'd, mix'd in blacks, which never dry alone.

The painter ought to take care, that he does not use the pencil with which he painted *verdegrease* in any other colours.

VERDETER } Is properly a native mineral substance, of  
VERDITER } a stony consistence, and of a blue colour,  
VERDITURE } but spangled with little shining points like  
gems; it is found in the mountains of *Hungary* and *Moravia*,  
and is the same that is also call'd *lapis Armenius*.

The *green* us'd by the painters, and call'd *verditer*, should be made of this stone well-ground and cleansed by washing.

But this stone being very rare, the *verditer* commonly us'd is not a native, but a factitious substance; which some say is prepared by casting wine or water upon new copper, as it comes red-hot out of the furnace, and catching the steams that rise from it upon copper-plates: others again say, it is prepar'd by dissolving

## V E R

dissolving copper-plates in wine, much after the manner of *verdegrease*.

But the method of making it in *England* is as follows:

The refiners pour their *copper-water* into an hundred pound weight of *whiting*, stirring them well together every day for some hours, 'till the water grows pale; then they pour that off, and set it by for further use, and pour on more of the green water, repeating this 'till the *verditer* is made; which they then take out, and lay on large pieces of chalk in the sun to dry.

The water which is pour'd off from the *verditer*, (which remains at the bottom of the tub) is put into a copper, and boil'd 'till it comes to the consistence of water-gruel; now consisting principally of *salt-petre* reduc'd, most of the spirit of *vitriol* being gone with the copper into the *verditer*: and a dish full of this being put into the other materials for *aqua-fortis*, is redistill'd, and makes what they call a double water, which is near twice as good as that made without it.

HENRY VERGAZOOM was a *Dutch* painter of lands and ruins, but chiefly the latter, which he performed exceeding neatly; his colouring was very natural, but his landskip part commonly too dark and gloomy, appearing as if it had been drawn for a night-piece: he painted sometimes small portraits, which were very curious. He left *England* some time ago, and died in *France*.

VERITY is represented [in *Painting*, &c.] by a naked beauty, holding a sun in her right hand, in her left a book open with a palm, under one foot the globe of the world.

Naked, because downright simplicity is natural to her; the sun shews her great delight in clearness; the book, that the truth of things may be found in good authors; the palm, her rising the more she is depress'd; the globe, that being immortal, she is the strongest of all things in the world, therefore tramples on it.

VERMILION is a very bright beautiful red colour, in great esteem among the ancients under the name of *minium*.

There are two kinds of it, the one *natural*, and the other *factitious*.

The *natural* is found in some silver mines in the form of a ruddy sand, which is afterwards prepar'd and purified by several lotions and coctions.

The *artificial* is made of mineral *cinnabar*, ground up with *aqua-vita* and urine, and afterwards dried.

It is also made of *lead* burnt and wash'd, or of *ceruss* prepar'd by fire: but this is not properly call'd *vermilion*, but *red-lead*.

## V I G

Yet this last, however, seems to be the real *vermilion* of the *ancients*, and both apothecaries and painters still give it the name to enhance the price.

We have two kinds of *vermilion* from *Holland*, the one of a deep red, the other pale; but 'tis the same stuff at the bottom: the only difference of colour, proceeding from the *cinnabar's* being more or less ground: when the *cinnabar* is finely ground, the *vermilion* is pale; and this is preferr'd before that, which is coarser and redder.

It is of very great use with painters in oil and miniature; and among the ladies for a fucus, or paint, to heighten the complexion of such as are too pale.

*Vermilion* some disapprove of, to be us'd in painting prints, unless it be prepared by washing, as is directed for *minium*; and then chiefly for dry painting, except it be by those persons, who can use it moderately, and with judgment; for all heavy colours will drown the shades or strokes of the engraver.

ANDREA VEROCCCHIO was the first who found out the taking off, and preserving the features of the face in plaister of *Paris*, born in the year 1431, liv'd at *Florence*, excell'd in history, musick, sculpture, and architecture, died in the year 1488, aged 56 years.

VERTUE is represented [in *Painting*, &c.] by *Hercules* naked, only with a lion's skin hung on his shoulder, or wrapp'd about him, and a knotted club, performing some one of his labours, as offering to strike a dragon, keeping an apple-tree, or holding in his hand three golden apples.

*He is drawn naked to intimate his simplicity: and by the dragon is set forth all manner of vices; by the lion's skin magnanimity and greatness; by his oaken club, reason and policy; by its knottiness, the difficulty, pains, and labour, in seeking after virtue; by the three golden apples, the three heroical virtues, moderation, content, and labour.*

VES. S. stands for *Vespasiano Strada* of *Rome*.

VICTORY is represented [in *Painting*, &c.] by a young lady clothed in gold, having wings on her shoulders, holding in her right hand a garland of laurel and olive, in her left hand a palm-branch, sitting upon a multitude of trophies of arms and spoils of enemies of all sorts.

The laurel, olive, and palm, are signs of honour and victory amongst the *ancients*, as their medals shew.

**ÆV** ÆNEAS VIGHI of *Parma*. His other marks are Æ. E. V. Æ. V.

VIGILANCE is represented [in *Painting*, &c.] by the same description as *Care*, whither you are referred. Every body knows that the lamp, book, and crane, denote *vigilance*. The cranes flying



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flying together, when they would rest securely; one of them holds a stone in its claw; the other, so long as the stone does not fall, are secure and safe by the *vigilance* of their companion; and it falls only, when the guards fall asleep, at the noise of which they fly away.



FRANCIS VILLAMENA of *Affize*, an excellent and expeditious engraver. He likewise us'd the following letters F. V. F. or F. *Villam. F.*

LIONARDO *da VINCI* of noble descent, born in the year 1445, scholar of *Andrea Verocchio*, liv'd at *Florence*, excell'd in painting history, portraiture, architecture, and sculpture; died in the year 1520, aged 75 years.

GIO BATTISTA VIOLA, born in the year 1576, scholar of *Annibal Caracci*, liv'd at *Rome*, &c. excellent at history, and chiefly at landskip, died in the year 1682, aged 46 years.

*Of dying VIOLET and Purple colours.*

1. *To make a purple dye.*

Take water q. s. *alum* twenty ounces, *madder* five ounces; boil, enter twenty yards of stuff, and boil it two hours and an half; take it out, and wash it well; wash the lead, and then put in clean water a sufficient quantity, *logwood* ground two pounds, boil it a while, and enter your cloth, handle it well, and take it out and cool it; enter it again, and put it in and out 'till the colour is strong enough.

2. *To make a Violet colour in grain out of a sad Blue.*

Take fair water, clear bran-liquor, of each equal parts, a sufficient quantity; *alum* nine pounds and an half, *tartar* five pounds and an half; melt them, and enter thirty pounds weight of wool, yarn, stuff, cloth, &c. of a sad blue colour: boil four hours, cool, wash it in cold water. Take fresh bran-liquor a sufficient quantity, *cochineal*, *tartar*, both in fine powder, of each fifteen ounces; mix, enter your cloth, handle it to a good heat, boil it two hours, handle it well, take it out and wash it, and it will be a pure *violet* or purple colour.

3. *Another purple colour without bluing.*

Take clear stale wheat bran-liquor, or four tapwort, a sufficient quantity; *alum* three pounds, enter twenty yards of broad cloth, boil it three hours, cool and wash it well.

Take fresh bran-liquor a sufficient quantity, *madder* twenty ounces, enter your cloth, boil with a quick fire, cool and wash. Take clear or fair water a sufficient quantity, *logwood* ground twenty-four pounds, boil half an hour, and put in some urine; then enter your cloth, and handle it, and boil half an hour; take it out and cool it, add *nut-galls* bruised two ounces, and enter your cloth again, handle it, and boil it half an hour, cool and wash it.

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### 4. *Another Violet or purple colour.*

Take clear stale bran-liquor a sufficient quantity, *alum* three pounds, enter twenty yards of broad cloth, and boil two hours and an half; cool and wash well. Take fresh liquor a sufficient quantity, *madder* twenty ounces, enter your cloth, and boil with a quick fire, cool and wash well. Take fair water a sufficient quantity, *logwood* ground eight ounces, *Brasil* ground two ounces; let them boil a quarter of an hour, enter your cloth at a boiling heat, handle it, and boil a quarter of an hour; take it out, and cool it; add urine a sufficient quantity; enter your cloth again, boil a quarter of an hour, then cool and wash it well.

### 5. *A good Violet or purple colour.*

Take water four gallons, *myrtle-berries* eight pounds, *alum* ten ounces, calcined brass one ounce, mix them in a brass kettle or vessel, boil half an hour, and strain it.

### 6. *Another purple colour.*

Take *orchal*, mix it with half urine, and let it boil 'till it is of a dark colour; then put in the matter you would dye, letting it lie twenty-fours or more.

### 7. *An excellent Violet colour.*

Take calcin'd *tartar*, *turnsole*, of each a pound, beat them and tye them up in a linnen-cloth, and steep them twenty-four hours in water, and then put in the matter, which you would have to be of a *violet* colour.

### *To dye Stuffs, &c. of a beautiful Violet colour.*

Alum the stuffs with half a pound of *alum*, two ounces of *tartar*, and a handful of *madder* in clear rain-water made hot, for every pound of stuff; let these ingredients be stirred well together, and when they are dissolv'd and begin to boil, put in the stuffs to be dyed, boil them for half an hour, take them out, let them cool, and rinse them out.

Put fresh water to the liquor, and put in a quarter of a pound of brown wood in a clean bag, boil it for an hour and an half, and then put in the goods again, and boil it for an hour and an half; then take it out, and put into the hot suds a quarter of a pound of *verdegrease*, it being first dissolv'd in warm water. Stir it well about, and then put in the stuffs again, stirring it about for a quarter of an hour, 'till it begins to boil; then take it out, cool and rinse it, and it will be of the most beautiful *violet* colour.

*Another.* Having alumed the ware as usual with one half starch-water, allowing for every pound two ounces of *alum*, and an ounce of *tartar*; boil them together for an hour: then having hung other fresh water over the fire, when it is hot, for every pound of ware put in two ounces and an half of *Brasil* shavings, and a sufficient quantity of great pot-ashes; boil them together  
for

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for a quarter of an hour, and then put in the stuffs, and there keep them 'till they take the dye; then cool them, and rinse them out.

### *To dye Thread of a lasting Violet colour.*

Boil half a pound of *tartar*, half a pound of *alum*, two ounces of *Brasil* wood, and half an ounce of *salt-petre* together, then lay the thread four hours in the liquor; then rinse it out, and dry it. *Then brown it* as follows;

Boil a pound of *brown wood*, and half a pound of *Brasil* in a large vessel; and use the dye in the following manner:

Divide it into four equal parts; remembering that each part is to be used warm, and the thread dyed after each operation; and when the first part is us'd, let there be added to it half an ounce of *sumach*, and one drachm of *salt-petre*.

The second time, a quarter of an ounce of calcin'd *tartar*, and one drachm of *verdegrease* powdered.

The third time, a quarter of an ounce of *sumach*, and one drachm of *salt-petre*.

The fourth and last time, if the thread remains a little reddish, pour in a quart of hot sharp lye, and you will find the thread of a beautiful *violet* brown.

But if the thread be boiled in *alum*, and blued with *woad*, and then browned with *Brasil*, the colour will be more beautiful and lasting.

### *To dye a good crimson Violet.*

First dye the stuff a deep blue green, and boil it as for right crimson, rinse it very clean out of the suds, and finish it with three drachms of *cochineal*, in proportion to one pound of ware, and you will have a right good colour.

### *A brown Violet colour.*

For twenty-five yards of fustian, frize, or other goods, take three quarters of a pound of *alum*, half a pound of *tartar*, half an ounce of *sal-armoniac*, boil the stuff in this liquor for two hours, rinse it out in clean water, and dry it in order to blue it, as follows.

### *The Blue dye.*

Dye it a deep lasting *blue* with *woad* or *indigo*, then rinse it clean and dry it.

### *The Brown Violet.*

Boil a pound of *Brasil* in a large pot by itself, and divide it into four equal parts; then with a clean ladle, put one part into the kettle before you put in the stuff, and also *salt-petre* and *sal-armoniac* pulveriz'd, of each one drachm; after this pass the stuff very well through the dye, then dry it, and put in another part of the *Brasil*, and add a quarter of an ounce of powdered galls; then pass the stuff through the dye again, and dry it again; thus repeating

repeating the operation twice or oftener; and after the fourth time, you will find it of a beautiful *violet* colour. But you ought to remember, that the fourth time you must use a clean sharp lye, in order to brighten the lustre, adding to it one drachm of calcin'd *alum*.

This colour may be produc'd from *brown wood*, and a quarter of a pound of *Brazil* in four or five operations, and by adding galls twice, but it is not so durable as the other; but in order to render it more lasting, you may add more *brown wood* and *indigo*, and may in the last place brown it with *Brazil*.

*To dye Silk of a Violet colour.*

For every pound of silk, take one pound of *blue*, or *Provence wood*, boil and stir the silk in it, as in the red dye; put into the last suds a few galls, then rinse the silk and dry it.

*A good lasting Violet.*

To every pound of silk take one pound of galls, and one pound of *blue wood*; and put in the silk when the suds are cold, for the colder the suds, the *bluer* the *violet* colour will be, which must always be bluer than the tawneys: let it lie a night in the suds, then in the morning rinse and dry it.

From the following dye are compos'd the best *tawnies*, grey and crimson goat-colours.

*To dye Silk a Violet brown.*

Let the silks be alumed as for *tawney*; and to every pound of silk, take two pound of *Provence wood*, boil it in a bag for a full hour; then take it out, put in the silk, boil that for an hour, and then take it out, and put in the bag again; then rinse it in a lye, as is directed to be made for other colours, and without *bole-armoniac*, and after that in running water.

CRIMSON VIOLET.

*The manner of dying Silk a purple.*

First boil and alum the silk as for *madder-red*; then put a sufficient quantity of clean water into a clean kettle, and for every pound of silk take an ounce of galls, and an ounce and an half of *cochineal* reduc'd to a fine powder, one ounce of *gums*, boil them together as you do the *crimson*; then lay the silk to soak in it for one night, after which cleanse it, and you have a good purple.

VIRGIN Copper is that which never has been melted down.

Virgin Gold, is gold as it is got out of the ore, without any mixture or alloy; in which state it is so soft, that it will take the impression of a seal.

Virgin Mercury, is that which is found perfectly formed and fluid in the veins of mines; or at least is got from the mineral earth by mere lotion, without fire.

Virgin Oil, is that which oozes spontaneously from the olive, &c. without pressing.

*Virgin*

## V I T

*Virgin Parchment*, is properly that made of a kind of cap or caul, which some children bring into the world on their heads. But the term is also us'd for that made of the skin of an abortive lamb or calf.

*Virgin Wax*, is such as has never been wrought, but remains as it came out of the hive.

VIRGINITY is represented [in *Painting*, &c.] by a pretty girl clothed in white, and crown'd with gold, her waist surrounded with a girdle (with an emerald) made of white wool, which in old times maids wore, called *Zona Virginæa*, not to be loos'd, but by their husbands on their Wedding-Night.

The white cloths and the emerald she has about her, and golden crown, denote purity.

VIRGULA DIVINATORIA is a forked branch in form of a Y, cut off a *hazle*-tree; by means of which, some pretend to discover mines, springs, &c. under ground.

The method of using it is as follows: The person who carries it walks very slowly over the places, where he imagines any mines or springs to be, and observes the rod to dip or incline to the ground; supposing that the *Effluvia* which exhale from the metals or water impregnating the wood, causes a dipping or inclination of it; which is the sign of a discovery.

Tho' some dispute the matter of fact, and deny it to be possible; yet others seeming to be convinc'd by the great number of experiments, alledg'd in its behalf, look out for the natural causes of it.

These Authors say in behalf thereof, that the corpuscles rising from the minerals or springs, penetrating the rod, determine it to incline or bow down, in order to render it parallel to the vertical lines; which the *Effluvia* describe in their rise.

VIRTUE is represented [in *Painting*, &c.] by a comely virgin, having wings behind, a spear in her right hand, and in her left a crown of laurel, and a *Sun* in her bosom.

Young, because she never grows old, her actions commencing into habits; the wings signify her soaring aloft, far above the vulgar; the *Sun*, that his virtue inspires virtue to the whole body; the laurel, that she is ever green, being proof against vice; the spear, dignity ruling over vice.

TIMOTEO VITE *de* URBINO born in the year 1470, imitated *Rafaele*, liv'd at *Urbino* and *Rome*, excell'd in history-painting, died in the year 1524, aged 54 years.

VITRIFICATION } Is the act of converting a body into  
VITRIFICATION } glass, by means of fire.

Of all bodies, the ashes of *fern*, *sand*, *bricks* and *pebbles* vitrify the most easily: and accordingly of the ashes of *fern* principally is glass made.

All

## V I T

All metals, and even almost all natural bodies being thoroughly heated in the fire, *vitrify* or turn to glass. And this *vitriification* is the last effect of fire; after which the most intense heat of the largest burning-glass will make no further alteration.

VITRIOL is a kind of fossil or mineral salt, chiefly found in copper mines; but is more properly rank'd among the class of semi-metals, as having a metallic matter mix'd or combin'd with its salt.

*Vitriol* is defin'd by *Boerhaave* to be a saline, metallic, transparent glebe; dissoluble in water, and fusible and calcinable by fire.

It is call'd by different names, according to the different places where it is dug; and the *vitriols* of those also, differ from each other in both name and colour; some being *white*, others *blue*, and others *green*.

*Roman vitriol*, for instance, is *white*; that of *Cyprus* *blue*, and that of *Pisa* and *Germany* *greenish*.

*White vitriol* partakes but little of any metal; *blue* partakes of *copper*, and *green* of *iron*.

According to *Boerhaave*, *vitriols* consist of a metallic part, with a sulphur adhering to a menstruous acid and water.

In *blue vitriol*, the metal wherewith the acid, &c. is join'd is *copper*.

In *white vitriol*, commonly call'd *white copperas*, it is mix'd with *lapis calaminaris*, or some ferruginous earth intermix'd with lead or tin.

In *green vitriol*, the acid is join'd with *iron*.

These *vitriols* are generally *factitious*, being only a kind of crystals; drawn by the means of water from a sort of marcasite usually found in mines, and call'd by naturalists *pyrites* or *quis*.

*Roman vitriol* is made by exposing these *pyrites* to the air, till such time as they calcine, and change into a greenish, and *vitriolic* calx or dust.

In this state they are thrown into the water, and are afterwards reduc'd into that kind of crystals, sent to us from *Italy*, by boiling and evaporation.

All the other *vitriols* are made after the same manner; that is, much after the same manner as alum is made in *England*, or salt-petre in *France*.

For *green vitriol* they add a great number of pieces of iron to the liquor in the boiling; these raise a great ebullition. As soon as the iron is dissolv'd, they evaporate the dissolution to a certain degree, and so let it crystallize.

The

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The crystals being form'd, there remains a thick, reddish, unctuous styptic and astringent liquor.

A solution of *vitriol* mix'd with a tincture of galls, becomes instantly exceeding black, and 'tis this is the common writing-ink.

*Vitriol* enters into the composition of *aqua-fortis*.

Some naturalists hold *vitriol* to be the root or matrix of copper; because in the copper mines they never dig deeper than the glebe, out of which the *vitriol* is drawn.

*Tartar of vitriol* is had by mixing oil of *vitriol* with oil of *tartar per deliquium*, procur'd by the first calcining; then distilling it: a salt precipitating to the bottom, which being set to exhale and crystallize, is the *tartar of vitriol*.

*Metallic vitriols*. It is to be observ'd, that all metals may be converted into *vitriols*, by dissolving them with acid spirits, and letting them stand; though 'tis very difficult to obtain *vitriol* of gold and silver; by reason that these metals are not easily dissolv'd by the spirit; but *vitriols* of iron and copper are easily had.

*The way of purifying Vitriol to make Aqua-fortis stronger and more penetrative.*

We have promis'd in the preceding pages to shew the way of purifying *vitriol*; which consists of taking away the yellowness; which alone hinders the good effects it is capable of producing. Take *Roman vitriol*, the best you can get, dissolve it in common warm water; then let it stand three days; then filter it, and sling away the yellow *fæces*; then evaporate in glass bodies two thirds of the water, and put the remainder into earthen glaz'd pans, and set it in a cool place for the crystal of it to shoot; which in twelve hours time, they will do about the brims of the pans, in little transparent pieces, like natural crystal of an *emerald*-colour: at the bottom there will remain a sulphureous sediment, which must be carefully separated and cast away.

Then you must take all those little green crystals and dissolve them again in warm water as before, and then filter and evaporate them in the same glass bodies; and set them again to crystallize as before in a cool place, taking care to separate all the yellow *fæces* you find. Reiterate this process of dissolving and filtering, evaporating and crystallizing the third time, then you will have a well-purified and refin'd crystal.

We will here add, for the sake of the curious, that those who make use of *vitriol* instead of *roach alum* to make *aqua-fortis*, the preparation whereof we have shewn elsewhere, ought to take a special care in the distillation, that as soon as the red fumes are past, all the spirits of nitre are raised, and that then the fire must be extinguish'd: for that which follows  
after



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after is only a spirit of *vitriol*, which hinders the operation of the spirit of nitre in the solution of metal.

You may also draw a parting water in twelve hours time, (as some refiners do) during which time, but little spirit of *vitriol* can arise with their fires.

ULTRAMARINE is a rich and beautiful blue used by *Painters* from an azure stone commonly call'd *Lapis Lazuli*, which is an opaque stone of a fine sky-colour or *Turkish* blue; or like the blue flowers that grow in corn-fields; it is embellish'd with small streaks and sparkles of a gold colour.

This stone comes from *Persia* and the *East-Indies*, and as some say from *Africa*; but if from the last, it is in no great quantities.

There is also a kind of *lapis lazuli* found in *Germany* and *Hungary*; but not fix'd, tho' as hard as that from *Asia*, which they call *Lefurstein* and its colour *Asurbleau*; but its colour changes in some time, and becomes greenish: however it is used by *Painters*.

The best *Lapis Lazuli* is that which is fix'd; that is, can endure the fire without altering colour.

Before you proceed to extract your *ultramarine*, take some account of the manner, to know whether the stone be good, for unless it is singularly so, you'll lose your labour: put pieces thereof on live coals, and blow them continually for an hour; if they retain their first hardness and colour afterwards, you may conclude them good; but if they crumble between your fingers, they are naught. It may be tried otherwise in an iron-ladle put into a furnace with some of the stone to heat, and so quench it in strong vinegar; if the colour remains still unchang'd and splendid, you may assure your self 'tis good.

When you have made this tryal, calcine it, which to do the easier, break the stone to pieces, as small as hazle-nuts, wash them afterwards in warm water, and set them in a crucible, on a wind-furnace, or into an iron-ladle to reunite; then cast them into a glaz'd earthen vessel of distill'd vinegar to quench them in; do thus seven times, to prepare them by calcination for powdering, and to prevent their sticking to the mortar.

Thus calcin'd, dry them well, and so powder them in a stone-mortar well cover'd, and accordingly scarce it with the same caution, as perfumers do their most delicate and finest powders, lest the best should go off, and dispel it self in the air: and thus preserve this precious powder with all imaginable care.

Some derive its name *Ultramarine* of the *Latin ultra* beyond and *marinus* of or belonging to the *Sea*; *q. d. beyond-sea*, because first brought into *Europe* from *India* and *Persia*.

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It is the common opinion, that the method of making it was first discover'd in *England* by a member of the *East-India* company; who having a quarrel with his associates, made the secret publick to be reveng'd of them.

*To make a liquid for moistning and grinding the powder withal, &c.*

For moistning and grinding your aforesaid powder of the stone, take a pound and a half of running water, and put this into a new earthen pot, add to it an egg-shell full of raw honey, boil it until it have no more scum; take the pot off, and keep this hydromel, or liquid for use in bottles, as we shall give occasion for hereafter.

This done, take four scruples of the best *gum dragon*, grind it on your marble, with some of the hydromel, and then put it into a glass; add thereto as much hydromel as you find convenient to bring it to a violet-colour, so cover it, and preserve it for use. This liquid is good for your powder of *lapis lazuli*; if the colour be too violet, add the less hereof; if otherwise, the more, as your judgment, or experience shall direct.

Put half a pound of powder at a time into a small porphyry, or marble vessel, the larger the mortar the worse, for you'll lose more, and be longer a grinding; pour leisurely by little and little thereon, some of your violet liquid, grind these together for a full hour, still wetting it; you may use three or four ounces of liquid to the half pound of powder, and you'll have it very good; you must take care of grinding it too long, for then it will lose its colour.

When 'tis thus ground, dry it on a marble or flat stone, where the *Sun* does not come at all, cover it well to preserve it from dust; when 'tis dry, 'twill powder easily between your fingers, if it be rightly done; if so, let it alone on the marble, but if it be clammy, or stick, take it off, for it has still some unctuousness of the honey in it, which must be cleansed away by a cement.

Your *lapis* being thus dry, wash it well before you put it to the cement, for which you must use a glaz'd earthen basin round above like a *barber's*, and well glaz'd within; put your *lapis* therein, and pour thereon some of the mild *lixivium* hereafter mention'd, as much as will rise above the surface four inches; wash the *lapis* very well with your hands, and then let it settle, and 'twill precipitate. The liquid being clear'd again, decant it into a large copper, or earthen vessel, then let the *lapis* dry in a shade in the same vessel it was wash'd in, and spread it afterwards on the flat marble, or porphyry, and there let it lie until quite dry: thus it is prepar'd for mixing with the cement, of which we will give the preparation hereafter

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*To prepare a mild and a strong Lixivium for the Lapis Lazuli.*

To make these *lixiviums*, take ten handfuls of vine-stalk ashes well sear'd; put this into a large vessel that will hold thirty pound of water, with a faucet at bottom; press the ashes very well, and put to them twenty pound of warm water. When it is sunk to the bottom, open the faucet, so as it may only drop into an earthen vessel; when it is all come out, stop the hole, and strain this *lixivium* through a felt strainer, and so keep it in a glass, or glaz'd pot well cover'd: this is the strong *lixivium*.

Again, pour in on the same ashes, the like quantity of warm water, and do as before; so you'll have an indifferent strong *lixivium*, which keep as the former.

Do this a third time, and you'll have the mild *lixivium* mention'd in the preceding page.

These three are very useful both for moistning, and to draw the powder of *lapis lazuli* from the cement; wherewith it must be mix'd, as will be shewn anon: which separation being sometimes hard to perform, we are oblig'd to have recourse to these varieties of *lixiviums* stronger, or weaker, as we find them convenient for the purpose.

You may yet make another *lixivium* to take away the grea-finess of the cement thus; boil calx of *tartar*, as much as you please, in clean water, for about a quarter of an hour, and keep it for use as the former. This is excellent for washing the *lapis lazuli* with; it strengthens and improves the colour thereof.

*The form of the glasses for preserving the liquids in, which are employ'd on the Lapis Lazuli.*

There always remains some of your colour in the waters, or *lixiviums*, wherein the *lapis lazuli* is prepar'd throughout all the process; you must therefore have a very large vessel of brass, or earthen ware, glaz'd and polish'd very well at bottom, wherein must be three holes; one in the middle of the side, the next a little lower, and the last about two inches from the bottom; stop these holes without-side very close, to prevent leakage.

Then pour all your waters into this; though you then perceive no colour at all, yet after ten days you'll have it at bottom, whither it will descend gently; and to get it you must go artificially to work, first opening the first cock or hole, and let out the water above that, before you open the other two; and thus you may get the colour without muddying, or losing any by the waters, which mix with the rest.

*To make strong cement to mix with Lapis Lazuli, to separate the finer and better stuff from the other.*

One cannot so easily part the finer *lapis lazuli* from its grosser parts, without making use of this cement to unbind the parts: take four ounces of very pure and clear *Venice-turpentine*; fix

ounces

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ounces of rosin of the pine, six ounces of *Grecian* pitch, three ounces of very good mastick, three ounces of fresh wax, an ounce and half of linseed-oil cleansed, as shall be directed.

Put the turpentine into a new-glaz'd earthen pot very clean, to dissolve over a slow charcoal fire, and continue stirring it with a wooden spatula, throw into this by degrees, the rosin of the pine, in small pieces, and stir it still very well; thus put in successively the pitch, the mastick in powder, and last of all the wax sliced small, stirring all continually about to mix and incorporate. Take great care of your fire, lest the cement should blaze, or burn, all the ingredients being hot of themselves, and combustible. Having well incorporated them, pour in the linseed-oil, stirring it as before, and so let it boil gently for a quarter of an hour.

To try whether the cement be enough, drop some of it off the spatula into a vessel of cold water: if it spread, 'tis not enough; but if it do not, 'tis sufficiently boil'd; so take it off. Or else you may wet your fingers, and take a drop thereof, roll and draw it out in length; if it snaps and breaks of it self, 'tis a sign that 'tis enough: take it off, and pour it boiling hot into an hypocras-bag steeped before in hot water; take care to let it go all through into a vessel of cold water, and for the better security, squeeze it along from top to bottom with two flat sticks, that none may remain in your bag. Afterwards work it well with your hands, till all the water be drained from it, and because being hot it may stick to your fingers, you may anoint them with some of the linseed-oil.

The cement being thus prepared, keep it in a vessel of cold water, shifting your water every day, or every second day; and by this method you may keep it for ten years.

*To make a weaker Cement for separating the colours of  
Lapis Lazuli.*

This second cement, which is the softer and milder, ought to be first employ'd on the powder of *lapis lazuli*; it draws the colour much quicker and better than the strong cement, which ought not to be used till after the milder; the whole secret of separating the colours, consisting in using the cements; for without a due care hereof, it cannot be done perfectly.

To make this cement, you must take four ounces of very pure turpentine, four ounces of rosin of pine, six ounces of *Grecian* pitch, one ounce of fresh wax, six drams of linseed-oil purified, mix and incorporate them successively as before. Observe only, that this is sooner done than the former, because 'tis weaker, and will give the colour soonest; therefore you must manage accordingly.

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### *To purify Linseed-Oil.*

The use we have for linseed-oil in our cement, obliges us to give this preparation, and way of purifying it, whereby it is made more fit for our purpose.

Take good and clear linseed oil, of the colour of saffron, and put it into a glass, shap'd like an ox-horn, with an hole at bottom to let out the water, which you must mix with the oil, letting them settle until the oil rises all uppermost; then open the hole, and let the water out, and the oil remain behind. Then shake the oil again, with more fresh water, let it settle, and the water run out as before; do thus eight or ten times, till the water comes out as clear as it went in, and so the oil will be pure and fit for your use; keep it well stop't in a glass bottle. If you can't get linseed-oil, you may use oil of bitter-almonds, without purifying, for it needs none; but take notice, the linseed oil is best of any, though cheaper than the other.

### *How to incorporate the powder of Lapis Lazuli with the strong, or weaker cement.*

We have already given the way to prepare the powder for mixing with the cement, to extract the colours; we now come to shew how to mix it with the cement, in order to extract the *ultramarine* from them for painting.

Take a pound of the powder, and the like quantity of cement assign'd before, observing always to take the first that was work'd with the hands; cut the cement small, and the pieces being a little wet, put them into a glaz'd earthen pot, over a fire of red-hot ashes to melt, and take care it does not boil; if it should, you must prevent the damage which it might cause, by putting in some linseed-oil. The cement being thus melted, anoint all your spatula over, from the handle downwards with the same oil, and so put in the powder by very little quantities, and taking a great deal of time, that they may the better incorporate; and be sure to stir it all the while very well with the spatula, so as to make it all alike, until it become like an ointment or salve: then off with the pot, and throw the stuff boiling hot into an earthen-bason of cold water, and at that very instant take off all that sticks to the sides of the pot. When it is cold enough to be handled, if it appears well colour'd, it is a sign you have work'd it well: this done, rub your hand with linseed-oil, and work it as they do a paste of bread or dough, for one hour, that it may be thoroughly compact. The longer you work it, the better and easier the colour may be drawn; afterwards make it up like a loaf or brick, and set it in an earthen dish to dry, pouring thereon some fresh water; let it steep for fifteen days, the longer the better for extracting the *ultramarine*.

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### *To extract the Ultramarine.*

Take therefore the loaf of cement and powder, washing it in the same water extraordinary well with your hands; weigh it to know the quantity of oil it requires, and put it into an earthen bowl or dish, very smoothly glaz'd, rubbing first the bottom with your linseed oil; then pour in water scarce warm'd, until it arise two inches above the matter; let it stand in this condition a full quarter of an hour (or less in the spring-time;) pour this water afterwards into the vessel before mention'd, adding more warm water to your matter, and so it will soften: continue thus whilst there remains any tincture thereon; by this means all the substance that is good for any thing, will be separated from the cement, which cannot be done otherwise.

Whilst it is imbib'd in the warm water, you must move and rowl it gently round with two sticks, or spatula's of box, or any other well polish'd wood, rounded at the ends smooth like a wall-nut; let them be about an ell long, and an inch thick. Whenever you perceive the matter stick to the bottom of your dish, rub your hands with linseed-oil, and stir it about leisurely so as to colour the water, which you must put along with the former, in the mean time holding up the matter with your staves, lest it should stick to the vessel.

Take notice that a little steeping at first will tinge the water very much, and when the cement is just yielding its colour, it will discover certain bluish streaks on the water like the *sun's*-rays, and then you must strain this water out among the other, through a scarce, that the grosser part of the cement may remain; afterwards pour in by little and little the fresh warm water, stirring the cement easily, that it may not dilate too much, and give its colour all at once. After you have thus stirr'd it about five or six times, close and amass it anew, by which means you'll see how much it is diminish'd, and what quantity of colour it has given.

If the *lapis* be good and right, you'll find the first steepings, yield about four or five ounces of *ultramarine*, which keep apart by its self as the best and finest colour, though it appear grosser than the others of this sort, by reason of the gold-colour'd veins, which are peculiarly therein.

For the second, whereof you'll have three or four ounces, you must follow the processes aforementioned: this indeed will be finer than the other, but not so good a colour; keep it also by itself.

Draw off a third, and this will be still finer than the former, but paler, and more bright coloured. You must still pursue the same Directions to extract it, letting your Water be but halt



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lukewarm, and take care to manage the cement dextrously with the spatula's, and so preserve the colour apart.

You may extract a fourth colour after this rate, but the water must be hotter, and you must press the cement very well with the spatula's to squeeze out the colour; and if meer water will not do, make use of the mild *lixivium*. This last colour will be greyish or ash-colour'd, and of no great value, and therefore not at all to be mix'd with any of the rest.

Observe here that you can't take up less than eight hours full, to extract the colours, nor less than ten or twelve to allow the water for settling; and if you perceive the colour does not come out free enough with the warm water, add a third part of our mild *lixivium*, and if that does not do, use all *lixivium*, but let it be cold; and when that fails too of effecting it sufficiently, you must make a *lixivium* of vine-stalk ashes, and this being strain'd, let it boil for half a quarter of an hour, until it be sharp enough to bite your tongue; and then let it settle and grow clear; this is your last shift for extracting your colour, and with this heated, wash your cement very well, and set it aside. The whole design of all this trouble, is only to serve for obtaining the greater quantity of *ultramarine*, and this consists in the goodness of the *lapis lazuli* and the cement, which the circumspection and care taken in all their preparations must advance.

*The method of cleansing the Ultramarine when it is separated from the cement.*

After you have extracted all your colours out of the cement, and the water quite settled and separated from them, pour on some of the mild *lixivium* before prescribed, and so wash them with your hands, (but don't rub it between them) thus you'll take away all the grease of the cement; afterwards wash it three or four times in fair water, and let the waters settle well before you put them into their proper vessels.

You may else another way purge the *ultramarine* thus: take the yolks of pullets-eggs, that have been fed only with corn, and not with greens; prick these with a pin, and so moisten the colours, kneading the mass with your hands, and washing it afterwards with your mild *lixivium*, until the *lixivium* falls off clear again. This done, wash them three or four times over with fair water, letting the waters settle well before you put them into their vessels.

This last way of purifying the *ultramarine*, is mighty effectual; but here is another help to be used with it, which is a very great secret, and performed thus: After the Colours are quite washed according to former directions, as well as possible, you must cast therein by little and little, a bull's-gall, rubbing it by  
degrees



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degrees with your hands; so wash them often in clear water, and you'll have the colour in full perfection.

*To strain off the Ultramarine already wash'd and purified.*

It is necessary to strain off the *ultramarine*, and the rest of the colours, that if any grease, or unctuousity of the cement remain, it may be taken quite away, for these colours require a perfect and extraordinary purification.

For this purpose take a fine searce, and pour thereon the last waters, with which you washed the *ultramarine*, and so strain them afterwards through another fine searce, and a third time through red *quintain* or crape; but you must observe when you strain them, to let them stand 'till you perceive them limpid and clear, and so soak off the water dextrously with a sponge, and be sure not to strain them promiscuously all together.

This being done to all the waters, let your colours settle in their proper vessels, and dry in the shade; when dry, put them into little leather bags; tie these close, rubbing them and pressing them with your hands: this will make them very subtile, and when the bags are opened, they'll shew much fairer than before.

*To correct the colours just before prepared.*

Few persons, unless such as are very curious of their work, make any use hereof, because of the time it takes up, tho' it would turn very much to their account; for one ounce of this colour corrected, will go farther than three that are not.

If you would make your colours just before prepared, much finer and effectual than they are, mix them again with a strong cement, and let them remain therein for three days; afterwards proceed according to the last directions, to separate them again; reiterate this over again, and you'll have them exceeding good; and tho' they diminish somewhat in weight, yet that loss will be repaid considerably in the beauty and value.

*Another way to make Ultramarine, and draw off the colours with more expedition.*

This method of making *ultramarine* is much more ready than the former; and experience will shew whether the colour be a gainer or loser thereby.

Take a pound of *lapis lazuli*, calcine it in a crucible, and quench it afterwards in vinegar, so let it dry, and then reduce it to a very fine powder; grind it on a *porphyry* with fair water, and set in a glazed earthen vessel in the shade, until it be dry; if you find it coagulated all in a mass, you must powder it again.

This done, make a cement of three ounces of *Grecian* pitch, four ounces of rosin of the *pine*, three ounces of *mastich*, three ounces of *frankincense*, two ounces of *oil-olive*; set these over a slow fire in a small earthen pot, into which pour first the oil, and when that's

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hot, put in the rosin, then the pitch, then the incense, and last of all the *mastich*, stirring them continually with the wooden *spatula*, and let them boil a little.

Having made the cement, get another earthen vessel, and put thereinto the *lapis lazuli*, and pour on it the cement hot, stirring the whole together with the *spatula* very leisurely, until they perfectly incorporate; let this stand a whole day, and when you would draw off the colours, pour thereon boiling water, stirring it very smartly.

When it begins to cool, pour it out, and so put in more hot water; do thus 'till the water begins to draw off the colour, and so continue until it be quite extracted; you may distinguish the waters, and so set them apart, and obtain the variety of colour as in the former way.

If your colour seems to be clammy or nasty, you may correct it thus: add thereto *tartar* dissolved in water, as much as will drown it, and let it repose for one day at least, so wash it in warm water, and you will by that means have it very correct, and well-purified.

### *Another way to make Ultramarine.*

Granting the two former ways to be sufficient, we will however here give a third, which we believe may as well be pleasing to those, who are not satisfied with the other, as to such persons as have a curiosity for these sorts of work; and thus we propose to proceed.

You must break the *lapis* into gross pieces, as small as nuts, then set these in a crucible into the furnace, 'till they redden with heat, and so cast them into cold water; do thus six or seven times, and so reduce them to impalpable powder in a porphyry-mortar well covered over, lest the powder, which is very subtle, should disperse away into the air, and then searce it with a fine searce also covered.

After this, take rosin of *pin*es, ordinary black pitch, *mastich*, fresh wax, and *turpentine*, of each three ounces; of incense and linseed-oil, each one ounce; melt all together in an earthen vessel, stirring them very well, that they may mix; this stuff being well incorporated, cast it into water, and keep it for use.

To each pound of *lapis lazuli* add ten ounces thereof, and set them to dissolve in a pot over a small fire, first melting the cement, and then casting on the *lapis lazuli* by little and little, observing such an order in this, and continually stirring the mass with a stick, that they may mix insensibly together. Afterwards cast the mass into an earthen vessel of cold water, and anointing your hands with linseed-oil, mould it up into a number of cakes, or rolls, which leave in cold water for five days, shifting the water every other day.

This

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This done, put them into a large and very clean glazed earthen vessel, pouring on them some clean hot water; when that cools, pour in more hot, and do thus 'till the pastils soften with the heat of the water: this done, put them into hot water, and let them be until it receive a bluish colour. Strain this water to receive the grosser pieces, and so put it into another glazed earthen vessel very clean, adding more to the pastils, which strain through a fine searce afterwards among the former; continue this until all the colour be extracted, and no more remain behind.

Your water must be only warm, otherwise it will occasion a blackness in the colour, which is to be taken care of, and imports very much.

All the coloured waters being in the vessel, you may cleanse them of any unctuousity, by reposing them for twenty-four hours, in which time the colour will stick to the bottom; then you may pour off the water gently into another vessel, and it will carry off the grease along with it; strain it afterwards into the vessel, where the colour is again, through a fine searce, and all the grease and nastiness will be left behind. Do thus thrice, stirring the colour very well every time you return the water to it, that the filth and grease may ascend from it, and it will always stay in straining on the searce behind the water.

This done, let the colour precipitate entirely, and so pour off all the water very leisurely, for fear of disturbing it; dry this colour, and you'll have delicate *ultramarine*.

If you would imitate this colour at little charge, make use of our blue enamel, after the same manner; and instead of the *lapis lazuli*, observing without exception the like regimen and prescription just now delivered in every respect, and by this means you'll have a very pretty agreeable colour to paint with, and for tinging of glafs.

This blue is one of the richest and most valuable colours used in painting.

Those, who prepare it, make usually four sorts, which is procur'd by so many different lotions, or washings.

There is *ultramarine* of the first sort sold for 11 l. sterling an ounce, and of the last for about twelve or fifteen shillings.

*Ultramarine* must be chosen of an high colour, and well-ground, which may be known by putting it between the teeth, and if it feel gritty, it is a sign it has not been well-ground.

To know whether it be pure and unmix'd, put a little of it into a crucible, and so heat it red-hot; and if the powder has not chang'd its colour after this trial, it is certainly pure; on the contrary, if there be any change, or any black specks in it, then it has been adulterated.

Besides

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Besides this, there is another sort call'd *common*, or *Dutch ultramarine*, which is only *lapis*, or *smalt* well-ground and pulveriz'd; the colour of which, when used by the painters, is much like that of true *ultramarine*, tho' much less valued.

### *To make Ultramarine.*

Pour five ounces of linseed-oil into an earthen dish, with three or four drops of water, set it on the fire, and let it stand 'till it begins to fry or boil; and then put in half a pound of *white Virgin wax*, broken into small bits. When the wax is melted, put in half a pound of *Greek pitch*, and two ounces of powder of *mastich*, which has been before melted by itself, and also an ounce of *turpentine*; let all together stand over the fire to melt for an hour.

Afterwards pour this composition into cold water, and if it proves soft like butter, it is enough; but if you feel any hard grains or grit, conclude that the *mastich* has not been melted enough, therefore set it over the fire again.

When the whole is brought to a due temper; put blue *lapis* into a crucible; and set it into the fire 'till it is red-hot, like the fire itself, and then throw it into *white-wine vinegar*; which it will imbibe, or absorb, 'till it bursts and breaks into small bits. Pound these bits in a mortar, and then incorporate this powder with a little of the above-mentioned composition; but with as little, as possibly may be, and let it remain in this state for about fourteen or fifteen days.

This being done, lay a board a little inclin'd upon the edge of a table (which board, if it had a channel or trench cut along it, would be more convenient) and under the foot of this board place a glass vessel or receiver, and put the blue paste at the upper part of it, and a vessel of water over that, so that it may distil drop by drop upon the paste.

Having dispos'd all things in this manner, help the water to dilute the paste, by stirring it very gently with the small end of a smooth stick.

The first blue, which will come away drop by drop, will prove the finest; and when you perceive that it begins to lose part of its beauty, change the vessel that receives it, and this will be a second blue; and you may likewise by thus changing the receiver have a third sort, which you may use.

Set these three sorts of *ultramarine* to dry, then put them up separately in bags of white leather.

### *Another way of making Ultramarine.*

Take a quarter of a pound of *lapis lazuli*, and lay it upon burning coals, letting it lie 'till it is red-hot, and then quench it in very strong vinegar.

After

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After this has been done, grind upon a hard marble stone with rectified brandy; the more it is ground, the finer the *ultramarine* will be. When it has been thoroughly ground, leave it upon the marble, or you may put it up in a vessel, while you prepare a paste, or pastel, for the incorporating the *lapis* with.

In order to make this paste, take two ounces of *yellow wax*, two ounces of *turpentine*, as much *rosin*, and as much *linseed-oil*; melt all these together over a slow fire, 'till they begin to bubble, which when it does, it is enough.

Pour this melted composition into glaz'd pans, and it will be your *ultramarine* pastel or paste, of which take a quantity proportionable to that of the *lapis*, that has been prepar'd, and knead them together upon the marble stone, *i. e.* both the *lapis* and pastel together, which when they have been incorporated, leave them in that state for a night.

Then in order to force the *ultramarine* out of the pastel, pour fair water upon it, and knead it with your hands like a piece of dough, and the *ultramarine* will squeeze out, which is to be receiv'd into an earthen vessel set under your hands; then leave it to settle in the said water, 'till you perceive the *ultramarine* has sunk to the bottom.

*Another way.* Take *linseed-oil*, *new wax*, and *arganfon*, of each two ounces; *rosin*, and *mastich* in tears, of each half an ounce; *Burgundy pitch* two ounces; incense of *frankincense* one drachm, of *dragon's-blood* the same quantity; let each of these ingredients be bruised in a mortar by themselves; then set the linseed-oil over the fire in a pan, and when it begins to fry, put in the ingredients one after another, letting the *dragon's-blood* be put in last; stirring the others continually with a stick, or *spatula*, and when you perceive the composition to become glutinous and stringy to your fingers, the paste is fit for use.

Then having prepar'd the *lapis lazuli*, by burning it on a coal-fire, quenching it in white-wine vinegar, grinding it very fine upon a marble, and searcing it through a fine searce; incorporate it with your paste, and let it remain in that state for twenty-four hours, and then force out the *ultramarine* with spring-water, but be sure not to use any other water, and you will have the first tincture, or degree of *blue*, which will be the finest and most lively of all: repeat this to the third time, and if after all the remains be put into a chymical vessel, you may get out the gold with which the *lapis* was impregnated.

Some persons knead the paste at once in a vessel of milk-warm water, into which they squeeze the *ultramarine*, leaving it to settle for twenty-four hours or more, and then pour off the water by inclination, and find the *ultramarine* at the bottom, which they set to dry in the sun.

Some

## V O R

Some leave the *lapis* incorporated in the paste for the space of a month, before they squeeze out the *ultramarine*; and in the paste put only oil of *turpentine*, instead of *linseed-oil* and *turpentine*; and black pitch instead of *Burgundy* pitch: and as for the *lapis* itself, they heat it, quench it, grind it, and searce it in the manner before directed.

UNANIMITY is represented [in *Painting*] cloth'd in a blue robe, mantle, and buskins, with a chaplet of blue lillies.

UNDAUNTEDNESS is represented [in *Painting*, &c.] by a vigorous youth in white and red, shewing his naked arms; seeming to stay for, and sustain the shock of a bull.

His arms shew his confidence in his own valour, to fight the bull, which being provoked, becomes fierce, and requires a desperate force to resist him; for undauntedness is the excess of bravery and stoutness; and we call a man undaunted, when, for ends proposed to himself, he fears not what others usually fear.

CIVIL UNION, a woman of a chearful pleasant countenance, holding an olive-branch in one hand, encircled with myrtle, the fish *scarus* in the other.

The olive and myrtle signify the pleasure taken in the amicable correspondence of citizens, for those trees are naturally and mutually joined, so ought citizens to embrace each other. The fish mutual love, for if one of them swallows the hook, the others hasten to bite the line asunder.

UNQUIET LIFE is represented [in *Painting*, &c.] by *Sisyphus* rolling a huge stone to the top of a mountain, which still falls back again.

The mountain denotes the life of man; the top of it, the quietness and tranquillity to which we aspire; the stone, the great pains every one takes to arrive at it. *Sisyphus* signifies the mind, which always breathes after rest, and scarce has obtained it, but desires still; for some place it in riches, some in honours, some in learning; this in health, that in reputation; so that it is found only by accident.

VOLUPTA, the goddess of pleasure, was depicted as a lady of a pale and lean countenance, sitting in a pontifical and majestic chair, embroidered and embossed with stars of gold, treading and trampling upon virtue.

F. DE VORSTERMAN was a disciple of *Harman Sacht-leven*, and an extraordinary curious and neat landskip-painter in little, in which he may very reasonably be said to have exceeded all the painters of his time. He performed his landskips with wonderful care and neatness after the *Dutch* goût. He spar'd no pains in his views, which commonly represent places on the *Rhine*; where he had studied and accustomed himself to take in a large extent of hills and distance. The extravagant prices



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prices he demanded for his pictures hindred him often from being employ'd by king *Charles II.* who was pleased with his manner of painting; especially that piece he made of *Windsor-castle*, now extant in the royal collection. He accompanied Sir *William Soames*, sent by king *James II.* on an embassy to *Constantinople*; but upon that minister's death he return'd to *France*, and died. His design in going for *Turky*, was to draw all the remarkable views in that empire; but he was disappointed by his patron's death, without whose protection he durst not attempt it, to the great regret of all lovers of art.

**L** *LA* LUKE VORSTERMAN painter and engraver of *Antwerp*, was advised by *Peter Paul Rubens* to apply himself to engraving; he engrav'd the works of the said *Rubens*, as also those of *Raphael* and *Vandyke*.

MARTIN DE VOS, born in the year 1540, studied in *Italy*, liv'd at *Antwerp*, excell'd in history, died in 1604, aged 64.

SIMON VOUET born in 1582, learn'd of his father. He liv'd at *Venice*, *Rome*, and *Paris*, excell'd in history and portraits, died in the year 41, aged 59 years.

V. P. or } were four marks used by *John Sebald Beham*,  
B or P. or } when he did not care to put his own name.  
J. S. P.

URANIA is represented [in *Painting*,] cloth'd in a mantle of *azure*, fill'd with lamps.

V. S. 1622 stands for *Valentine Sezenius*, the same mark was also used by *Virgilio Sole*.

V. S. I. signifies *Ventura Salembini* of *Sienna*, painter and inventor.

**A** ANTHONY VAN VUATERL, i.e. *Anthony van Vuaterl* inventor, is found in certain land-skips and solitudes; it is sometimes join'd with the first of the three marks that follow the next, i.e. H. S. P. made in one.

VULCAN is represented [in *Painting*, &c.] standing by a smith's forge, and hammering on an anvil on mount *Ætna*, making thunderbolts for *Jupiter*, and arrows for the god of love.

*The opinions which the ancients had of Vulcan were various, and accordingly he is variously represented some times in one manner, and sometimes in another.*

Some represent him lame of one leg, and in a scarlet robe, of a very black and swarthy complexion, as it were all smoaky; of a general ill-shap'd proportion in all his lineaments; and because he is the husband of *Venus*, she is sometimes painted with him.

*Alexander Neapolitanus* writes, that *Vulcan* had a statue erected to him in a certain place in *Egypt*, holding in one hand a mole, and in the other a thunderbolt.



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*The mole signifies he sent (as they imagined) an unspeakable number of moles among them, as a plague to them, which gnaw'd and destroy'd every thing that was good.*

**W** *ANTONY VUORMACE* a *Painter* of *Cologne*, liv'd in the year 1529, he engrav'd the twelve apostles in a standing posture, and used this mark.

### W.

*To make sealing* WAFERS.

**T**Ake very fine flower, mix it with glair of eggs, ising-glass, and a little yeast; mingle the materials, beat them well together, spread the batter, being made thin with gum-water, on even tin-plates, and dry them in a stove, then cut them out for use.

You may make them of what colours you please, by tinging the paste with *Brazile* or *Vermilion* for red; *Indigo* or *Verditer*, &c. for blue; *Saffron*, *Turmerick*, or *Gambooge*, &c. for yellow.

*To put* WALKS *with rows of trees in perspective.*

If only a single row of trees on each side be requir'd, there is no need for making a plan of squares or chequers.

But where a number of *walks* are to be shewn, we think it advisable to form a plan in occult lines with trees, and from the diagonals of the little squares formed thereby, to erect perpendiculars, as is shewn in A. B.

If you desire to have the trees further or less apart, increase or diminish their distances of the squares on the base-line; when you have given the stem of the first tree its proper height, as A. C. draw a line from G to the point of sight D. which ray C. D. is to bound the stems of all the other trees.

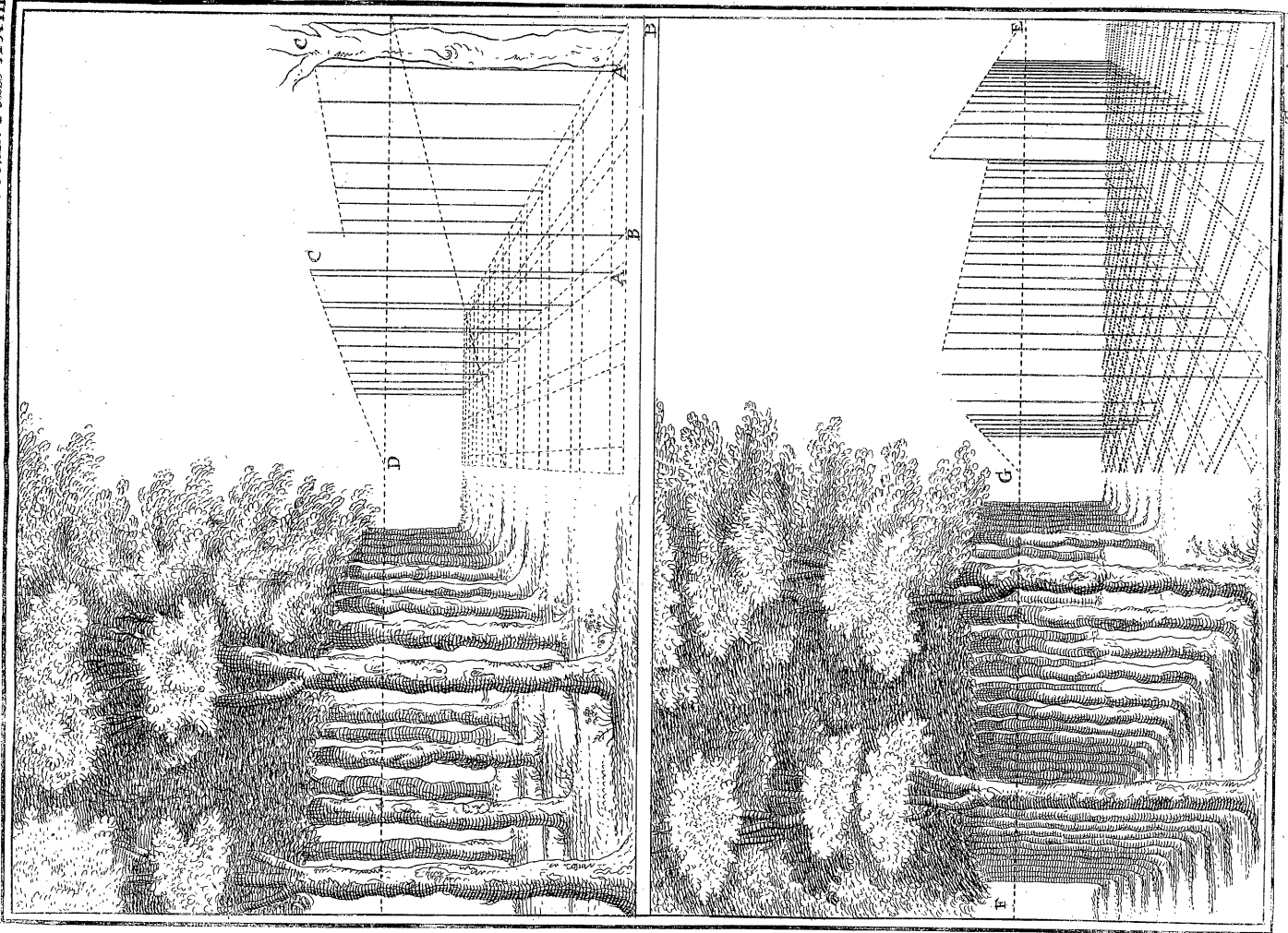
The first tree A. B. shews that you may give them what turn or form you please between the 2 right lines; and that they are not to be drawn with the straitness of a ruler.

The figure underneath is perform'd as that above; all the difference is, that the squares of the upper are direct or in-front; and those of the under viewed angle-wise: whence the measures on the base line in the latter case, must be all drawn to the points of distance E and F perpendiculars to be rais'd from the little squares, and the rest as above.

In the same perspective where *walks* are drawn to the points of distance, one may add others drawn from the points of sight. Thus the middle *walks* tends to the point G. which is the point of sight, and the others to the points E. F. which are those of distance.

*To make a* WALNUT-grain *on* WOOD.

Spread on it thin; 7 or 8 lays of strong glue one after another, each being first dry'd, and it will become shining; then wet a brush or pencil in common water, and form the knots or other strokes





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strokes in the glue whilst warm, and so strike hard on it with a wooden brush, and lay another laying of glue and polish it.

*To make wood of the colour of WALNUT-TREE.*

Dry the peels of walnuts in the sun, boil them in nut-oil, and rub the wood over with it.

WARLIKE STRATAGEMS are represented in [*Painting, &c.*] by a man in armour; a rapier by his side, a shield on his left arm, and a frog engraven on it, with a piece of reed against his jaws, over against a serpent going to devour him, on one side a leopard; over his helmet a dolphin.

Armed, because he ought to be upon his guard. The dolphin was the badge of *Ulysses*, the author of stratagems, he bore it in memory of a dolphin's having saved his son. The frog denotes prudence, by holding a reed cross its mouth; for knowing her self inferiour in strength, the hydra cannot swallow her, having the reed cross-ways.

*To WASH COLOURS.*

Put the colour into a glaz'd vessel, and put fair water to it plentifully, wash it well, and decant (after a while) the water, do this 6 or 7 times; at last put the water (being just troubled) into another glaz'd vessel, leaving the dregs at the bottom; then into this second vessel put more fair water, washing it as before, till the water (being settled) be clear, and the colour remain fine at the bottom.

*Before you take the colour out of the vessel, spread it very thin about the sides thereof, and when it is dry, some of it will fall to the bottom, which keep by it self; but the remainder which sticks to the sides of the bason is the best of all, which with a feather strike off from the sides of the vessel, for it will be finer than any flower.*

STEEPING of COLOURS.

Take a quantity of the colour and put it into a shell, and fill the shell with fair water, to which add some fine powder of alum, to raise the colour; let it thus steep a day and night, and you will have a good colour.

Where note, saffron steep'd in vinegar gives a good colour, and the *Venice* berries in fair water and a little alum, or a drop or two of oil of vitriol, makes a fair yellow.

But some colours are to be boil'd, as *Brazile, logwood, turnsole, rinds of wallnuts, wood-foot*; &c. these when boil'd are to be kept close stopp'd in glasses, till you have occasion to use them.

*To make WASH-BALLS.*

Take a pound of white cake soap, scrape it, and pound it well in a mortar, take out the crumbles that are not well incorporated, and put in a pound of starch well powder'd, and an ounce of the essence of orange, half a pint of macanet water prepar'd; stir them

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them gently with a pestle, then pound them till they are all well mixed, make the paste up into balls, and let them dry.

### *Wash-Balls of NEROLI.*

Take 4 pounds of cake-soap well cleans'd, scrape it and put to it as much of rose or orange-flower water as will temper it, stirring it twice a day, that it may soak the better, then pound it well and put in half a pound of *Labdanum* in powder, and an ounce of *Neroli*, mix them into a paste and so make them up into balls.

### *Wash-Balls of BOLOGNA*

Take three bundles or boxes of these balls, pound them and dip them in as much angel-water as will wet them, then add half a pint of *Benjamin* water, and of the paste make 2 equal cakes by pounding them well; then beat 2 drachms of musk or civet very small, and 2 ounces of balm of *Peru* dropp'd in by degrees; add to these the gross essence of *Amber*, and some essence of *Cloves* and *Cinnamon*; mix these with the paste, make it into balls, and keep it for a very curious perfume.

In this nature other wash-balls or paste may be made, and perfumed with various scents.

WASHING [in *Painting*,] is when a design drawn with a pen or crayon has some one colour laid over it with a pencil, as *Indian ink*, *bistre*, or the like, to make it appear the more natural, by adding the shadows of prominences, apertures, &c. and by imitating the particular matters whereof the thing is supposed to consist.

Thus they wash with a pale *red*, to imitate brick and tiles; with a pale *Indian blue*, to imitate water and slate; with green, for trees and meadows; with saffron or *French berries*, for gold and brass; and with several colours for marbles.

These washes are usually given in equal tints or degrees throughout, which are afterwards brought down and softened over the lights with a fair water, and strengthened with deeper colours for the shadows.

WASHINGS.  $\int$  [with *Goldsmiths*, &c.] are the lotions, WASHES.  $\int$  whereby they draw the particles of *gold* and *silver* out of the ashes, earths, sweepings, &c.

This is either performed by simple *washing* them again, or by putting them in the *washing mill*.

To make one of these washes, they not only gather together the ashes of the furnaces, and the sweepings of the places where the works are, but they also break and pound the old earthen crucibles, and the very bricks whereof the furnaces are built; little particles of gold, &c. being found to stick to them, by the crackling natural to those metals, when in their last degree of heat.

These

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These matters being all well ground and mixed together, are put into large wooden bowls, where they are washed several times and in several waters, which run off by inclination into several troughs underneath, carrying with them the earth and the insensible particles of the metals, and only leaving behind them the larger and more considerable ones, which are visible to the eye, and taken out with the hand, without more trouble.

To get out the finer parts, which are gone out with the earth, they use quicksilver, and a *washing mill*.

This *mill* consists of a large wooden trough, at the bottom of which are two metalline parts, serving as mill-stones; the lower being convex, and the upper, which is in the form of a cross, concave.

At the top is a *winch* placed horizontally, which turns the upper piece round; and at the bottom a bung to let out the water and earth, when sufficiently ground.

To have a *wash* then, the trough is filled with common water, into which they cast 30 or 40 pound of quicksilver, and 2 or 3 gallons of matter remaining of the first lotion.

Then turning the winch, they give motion to the upper part of the mill, which grinding the matter and the *Quicksilver* violently together, the particles of the gold and silver become the more easily amalgamated therewith: this work they continue for 4 hours; when opening the bung, the water and earths run out, and a fresh quantity is put in.

The earths are usually passed thus through the mill 3 times, and the same quantity of *mercury* usually serves all the 3 times. When there is nothing left in the mill but the mercury united with the *gold* and *silver* which it has amalgamated, they take it out, and washing it in divers waters, they put it into a ticking bag, and put it in a press to squeeze out the water, and the loose *Quicksilver*; the remaining *Quicksilver* they evaporate by fire in a retort, &c.

### OF WASHING MAPS, PICTURES, &c.

By washing is intended nothing else, but the setting out either maps or pictures in proper colours.

1. The instruments and materials us'd in washing are chiefly these few following. 1. *Alum-water*. 2. *Size* or *gum-water*. 3. *Liquid gold or silver*. 4. Pencils. 5. Colours.

2. To make *alum-water*, dissolve 4 ounces of alum in a pint of fair water, boiling them till the alum is dissolv'd; or thus, to 2 quarts of spring or well water, put half a pound of *Rock-alum* powdered, dissolve it well by boiling, filtre it through brown paper, and keep it for use.

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Wet your paper with this water before you lay on any colours, and it will prevent them from sinking in; and it will besides add a lustre and beauty to the colours laid on.

But you must take notice of this; that if the paper is not good, it must be washed over 4 or 5 times with a large brush or pencil.

And likewise remember this; that *alum* raises staining colours, and preserves them from fading.

*To make size.* Steep glue all night in water, and the next morning melt it over the fire, making it neither too strong nor too weak; then let it cool a little and if it be too stiff when cold, add a little water to it, and if it be too weak, put in more glue, and use it luke-warm.

*To make gum-water.* Put a quart of pure spring-water into a jar-glass, and hang in it, ty'd up in a fine woollen rag, a sufficient quantity of pure white *gum-arabick* bruised. Let it hang till the *gum* is dissolved; put your fingers into the water, and if you find them to stick together as if they were glued, your water is too strong, or full of the gum; and therefore you must put more fair water to it; and if you find it too weak, you must put in more gum.

1. With this water, or the former size, most of the colours are to be tempered, and with so much of the gum-water as that it being touch'd when dry, the colour will not come off, and if the colour glister, there is too much gum in it.

Your pencils must be of all sorts, both fitch'd and pointed; and besides these, a large brush for pasting of paper upon cloth; and another for wetting the paper with *alum-water*; and a third for starching the face of the picture with, before it is coloured; and a fourth for varnishing with.

*The colours are,*

1. *Reds*, *Brasile*, turnsole, *Indian-lake*, cinnabar, vermilion, red-lead, cochineal, *Indian cakes*, roset.

2. *Yellows*, yellow-berries, gambooge, aloes, saffron, orpiment, masticote.

3. *Greens*, sap-green, verditer, green-bice, verdigrease.

4. *Blues*, litmose, indigo, logwood, blue-bice, small-indigo, logwod, ultramarine.

5. *Browns*, *Spanish-brown*, umber, wood-foot, rinds of green walnuts, walnut-tree leaves.

6. *Blacks*, lamp-black, ivory-black, printers-black, common ink, hartshorn-black

7. *Whites*, flake-white, *Spanish-white*.

*Some of these colours are to be steep'd*, as aloes, gambooge, sap-green, yellow-berries, verdegrease, *Indian cakes*, saffron and wood-foot.

*Some*



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*Some are to be boil'd, as Brasile, logwood, turnsole, green walnut-rinds, wood-foot, bice, red-lead, roset.*

*Some are to be washed, as Spanish-brown, orpiment and verditer.*

*Some are to be burnt, as umber, printers-black, Spanish-brown, lamp-black, ivory-black, and these are afterwards to be ground.*

*Some are to be ground, as cinnabar, vermilion, Indian-lake, white-lead, Spanish-white, masticote.*

### *Simple colours for WASHING.*

*Aloes.* This makes a deep or sad kind of yellow colour, according to the goodness of the *aloes*, and is to be dissolved in a weak gum-water.

*Blue bice*, is an excellent blue, washed and tempered with gum-water; there are of it several sorts, some lighter, and some sadder.

*Blue bice, verditer, and smalt*, ground singular with gum-water (or together) make a good *blue*.

*Green bice* washed and tempered with gum-water, makes a good but not transparent green.

*Spanish-brown* burnt, ground, and tempered with gum-water, makes a reddish brown, or liver-colour.

*Ceruse*, ground or mixt with gum-water, makes an excellent white.

*Native cinnabar* must be ground like red-lead, and is a glorious red colour, much exceeding the artificial.

### *To make Ceruse according to Glauber.*

This colour is made with *Venus* (or copper) in vinegar in an earthen pot set in horse-dung; but if you dissolve your *Saturn*, (i. e. lead) with spirit of *nitre*, and precipitate with salt water, you will have a *ceruse* whiter and purer than ordinary, and much better for painting.

*Cochineal* steep'd makes a fair transparent purple; do thus, put *cochineal* into the stronger soap-lees, and it will make a fair purple colour, which may be lightened or deepened at pleasure.

It will also make a transparent purple, being steeped in strong vinegar.

*Yellow fustick-berry* being either boiled in water, or steeped in alum-water, makes a good and transparent yellow.

*Flory-blue* must be ground with the glair of eggs, to which, if you afterwards add a little roset, it makes a light violet-blue; and with white and red lead it makes a crane-feather colour.

*Gamboge* dissolv'd in fair spring-water, will make a beautiful and transparent *yellow*; and if you would have it stronger, dissolve some *alum* in it; it is good for silk, linen, white leather, paper, parchment, vellum, quills, &c. This colour delights in no mixtures.

*Indigo*, ground and temper'd with gum-water, makes a deep blue, and is fit to shadow all other blues.

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*Indian-lake* ground with gum-*Arabick* water, makes a glorious murrey ; in grinding it, add a little sugar-candy ; some say it makes a deep pink, or bloom-colour.

*Indian-cakes* are to be used after the same manner as *turnsole* ; they make a good transparent red colour : put some gum into the liquor to bind it.

*Ivory-black*, burn, grind, and temper it with gum-water, and it will make a very good *black*.

*Lamp-black*, } burn, grind, and temper them with gum-  
*Printers black*, } water, and they'll make a good black.

*Red-lead*, grind with a stiff gum-water, and a little saffron being added, it will make it orient.

*Flake-lead*, or *flake-white*, ground and tempered with gum-water, is an excellent *white*.

*Litmose*, cut into small pieces, and steep'd for a day or two in weak gum-lake water, will make a pure transparent blue to wash with.

*Logwood*, ground and boiled as *Brazile* makes a very fair transparent violet, or purple-colour.

*Madder*. Boil 4 drachms of madder with an ounce of *Brazile*, in a quart of rain-water, boil away a third part, then put in half an ounce of *alum*, and boil it to a pint ; add an ounce of gum-*Arabick*, boiling it till it is dissolv'd ; cool it, stirring it often, and strain it for use. It is a good scarlet-dye for leather.

*Masticote*, grind it and temper it with gum-water, and it will make a good *yellow*, but not transparent.

*Orpiment*, wash it, put to it gum-water ; it makes a good orient, or gold-colour : there are several degrees of it, some more red, others more yellow.

*Rosset*, wash it, and temper it with gum-water, and it will be much of the same colour as *Indian-lake*, but it will soon fade and grow lighter ; but being tempered with *Brazile*-water, will be deeper.

*Sap-green*, steep'd all night in sharp vinegar, and a little alum added to it to raise its colour, it makes a good *green* to shadow with.

*Saffron*, steep'd in vinegar and mix'd with gum-water, makes a good *yellow*. In white-wine or sack it does the same ; but mixt with equal parts of cochineal, it makes a more glorious one. It may also be steep'd in glair of eggs, or ground with vermilion.

*Smalt*, ground with a little fine rosset, makes a deep *violet*.

*Wood-foot*, boil'd in water and strain'd, and gum-*Arabick* put to it to bind it, makes an excellent colour to express high-ways, lanes, &c.

*Spanish-white*, ground and tempered with gum-water, makes the best of all whites.

*Turnsole,*

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*Turnsole*, set it over a gentle fire in sharp vinegar, till it boils, and is coloured, then take it out and squeeze it into the vinegar; dissolve in it a little gum-*Arabick*; it will make a good shadow, or *carnation*, or *yellow*.

*Verditer*, wash it and temper it with gum-water, and it will be a good *blue*, but not transparent, or inclining to green.

*Verdegrease*, grind an ounce of verdegrease very finely, put to it a good quantity of common varnish, and as much oil of turpentine as will make it thin enough to work withal; and it will be a good green.

Fine *verdegrease* being dissolved in *Rhenish*-wine, makes a transparent green, inclining to blue.

Being ground with juice of *rue* and gum-water, it is a pure green; without the juice it makes a glorious emerald.

*Verdegrease* mixt with crystals of *tartar* in white-wine vinegar, in which gum-*Arabick* has been dissolved, makes a pure green.

*Verdegrease*, boil 2 drams of it with 2 drams of *alum*, and 6 drams of *logwood*, in vinegar, and it will make a good murrey.

*Ultramarine*, grind it with *litmose*-water, if you would have it very deep.

*Umber*, burn it, grind it, and temper it with gum-water, and it will make a good haw-colour; and be very good to shadow with, upon gold.

*Green of walnuts*, boil them in walnuts, strain them, dissolve gum-*Arabick* in the liquor, and it will be an excellent colour to express high-ways, lanes, &c.

Of compounded colours for WASHING of MAPS.

*A blue to wash upon paper.*

Take half an ounce of the best *azure*, of kermes, one ounce; mix them and temper them with gum-water, and it will be a glorious *blue*.

*A Venice blue.*

Make quick-lime into a paste with strong vinegar, and half an hour after, put more vinegar to soften it, then add to it an ounce of *indigo* finely powdered; mix them together and digest them for a month or 6 weeks, in horse-dung.

*Another excellent blue.*

Mix fine chalk with juice of elder-berries, full ripe; and put to it a little alum-water.

*Ultramarine*, blue, bice, smalt and verditer, ground singly with gum-water, or together, make a good *blue*.

*To make blue smalt.*

Take fluxible sand, *sal-nitre*, and *cobalt*, and mix them together

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*Green*, digest filings of *copper* in distill'd *vinegar*, till the vinegar is blue; set it in the sun, or on a slow fire, till it is thick enough, and it will be a good *green*.

*Or thus*; take *cedar-green*, which is the best of all, or instead of that, *green bice*, steep it in vinegar and strain it, then grind it well with fair water, and add to it a little honey, and dry it well; and when you use it, mix it with gum-water.

*A light green*; grind together juice of *rue*, *verdegrease*, and *saffron*, and use them with gum-water.

*Or thus*; steep *sap-green*, *flower-de-luce*, or *tawney-green*, in water; also *verditer* and ceruse, mixt with a little *copper-green*, make a good light colour.

*A never-fading green*. Put the juice of *flower-de-luce* into gum-water, and dry it in the sun.

*To make a lively yellow*, dissolve *orpiment* in gum-water, put to it a little ground *vermilion*; grind them together, and they will be a very lively colour.

*Orange-colour*; *red-lead* and *yellow-berries* make a good orange-colour: *or thus*; boil an ounce of *arnotto*, and 2 drams of pot-ashes, in a quart of water, till half is boiled away; then strain it and use it hot.

This is good for paper, parchment, vellum, white leather, quills, &c.

*Flesh-colour*. Mix *white Indian-lake*, and *red-lead*, (according as you would have it, light or deep) and to distinguish a man's flesh from a woman's, mingle a little oker with it.

*Brown*. *Ceruse*, *red-lead* and *English-oker*, and *pink*, make a good *brown*.

*Spanish-brown*. This not being calcin'd, is a dirty colour; but yet is proper for a horse, dog, &c. but to shadow *vermilion*, or to lay upon any dark ground, behind a picture, or to shade berries in the darkest places, or to colour wooden posts, wainscot, trees, &c. (being burnt) is very good.

*Colours of stones*. *Verdegrease*, with varnish, makes an *emerald*; with *Florence-lake*, a *ruby*; with *ultramarine*, a *sapphire*.

*Of mixing colours and shadowing.*

1. Take care in mixing colours, not to make them too deep; neither take pencils out of one colour, to put into another, without washing it.

2. In mixing colours, stir them well separately, before you mix them, and afterwards put them together, making them lighter or deeper, at pleasure.

3. Garments are shadowed with their own proper colours, or the colours may be mix'd with white for the light parts, and they may be shadowed with the same colour unmix'd; or you may

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may use the thinnest of the colour for the lightest parts, and shadow with the thickest, or bottom of your colour.

*Green* is shadowed with *indigo* and *yellow-berries*; *blue* is shadowed with *indigo*, *litmose*, and *flory*; any of them steep'd in the lees of soap-ashes, and us'd with gum-water.

*Yellow* is shadowed (if it be made with yellow-berries) with *umber*; but for beauty's sake, with red-lead; and the darkest touches with *Spanish-brown*; and for variety, with *copper-green*, *blue-bice*, or *verditer*.

All light colours are shadowed with colours of the same nature; but fadder, as for example, *vermilion*, is shadowed with *lake*, or *Spanish-brown*; *verditer* and *bice* are shadowed with *indigo*.

*Sap-green* is used only to shadow other greens with, and is not to be laid for a ground in any garment.

*Lake* should not be shaded with any other colour, for it is a dark red; yet for variety sake, you may shadow it with *bice* or blue *verditer*, which will make it like a changeable taffeta.

*Blues* set off with *yellows*, *reds*, *whites*, *browns*, and *blacks*.

*Greens* set off well with *purples* and *reds*.

*Gambooge* and yellow-berries are shadowed with *umber*, red-lead, or *vermilion*.

*Red-lead* is shadowed with *lake* or *Spanish-brown*.

*White* sets off very well with *blues* and *blacks*.

*Yellows* set off very well with *reds*, *fad-blues*, *browns*, *greens*, and *purple*.

*Verdegrease* is shadowed with *indigo* mixt with *yellow-berry* water.

*Spanish-brown* is shadowed with burnt *umber*, and with *Brafile-water*.

*Umbre* is shadowed with *umber* burnt.

*Rosset* and *Brafile* are shadowed with *Spanish-brown*, mix'd with *Brafile-water*.

*Red-lead* is shadowed with *lake* or *Spanish-brown*.

*Masticote* is shadowed with red orpiment.

*Wood-foot* and *walnut-shells* are shadowed with *umber*.

From the variety of the mixtures of the before-mentioned colours, infinite varieties almost may arise.

For *compound orange-colour*, mix *Brafile-water* with *yellow-berry* water, of a transparent colour.

For a *compound blue*, mix *litmose-water* with *yellow-berry* water, and it will make a transparent *fad blue*; which you may heighten or deepen, at pleasure.

A *compound green*. Mix *verdegrease-water* with *yellow-berry* water, and it will be transparent; and this may be made either deeper or higher, according to the proportion you take of either.

Infinite other varieties you will find out by practice.

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### Colours for washing LANDSKIPS.

1. Grind *pink, bice, smalt, masticote*, or *indigo*, mixt with *white*; or *blue verditer* mixt with *yellow-berries*; these make good greens for landskips.

2. Use *burnt umber* for the *saddest hills*; and add yellow to the burnt, for the *lightest*; lay *copper-green* thickned, on the fire, or in the sun, for other *hills*.

3. For the next *hills farther off*, mix *yellow-berries* with *copper-green*; let the fourth part be done with *green verditer*, and the farthest and faintest places with *blue bice*, or *blue verditer* mixt together, and shadowed with *blue verditer*, in the shadows indifferently thick.

4. Do the high-ways with *red* and *white-lead*, and to make some variety, with *yellow oker*; shadow with *burnt umber*, which may also be used for sandy rocks and hills.

5. Also make rocks of several colours; in some places with black and white; and in other places with red and white; and in other places, with blue and white, &c.

6. Water is to be made with *black verditer*, and *white*, when the banks cast a green shadow upon the water, and the water is dark shadowed, then shade it with *indigo green* thickned, and *blue verditer*.

7. Colour *buildings* with as much variety of pleasant colours, as shall be agreeable to reason.

8. You may sometimes use white and black for a *wall, conduit*, &c. and red-lead, for *brick-houses*, &c.

9. If many houses stand together, you may wash them of different colours; as with *umber*, and *white*, *lake* and *white*, *red-lead*, and *white*, &c.

10. For the *lowest and lightest places* of a sky, use *masticote*, or *yellow-berries*, and *white*; for the next degree, *red*, *rosset*, and *white*; for the other, *blue bice*, and *white*; and for the *highest*, *blue bice*, or *blue verditer*.

These degrees and colours must be so wrought together, that there may be no sharpness upon the edge of any of them, or so that it cannot be perceiv'd where you began to lay them on, they being so drowned, one in another.

### Of the practice of WASHING.

Wet your pictures that you are to colour over, with *alum-water*, for that will prevent the colours from sinking in, and will also add a lustre to them; and not only make them appear fairer, but also keep them from fading.

2. Let the paper (thus wash'd with *alum-water*) dry of it self, before you lay the colours on; or before you wet it a second or third time: for some paper will require wetting 4 or 5 times.

3. This

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3. This washing of the paper with the *alum*-water, is to be done with a large pencil-brush.

4. But if the pictures are design'd to be varnished after they have been coloured, instead of the *alum*-water, it will be best to size them with new size, made of good white starch; do this with a very fine brush, and you must be very exact, in doing it all over, for if there be any place left undone, the varnish will sink through.

5. The pictures, &c. being thus prepar'd, you may proceed to the laying on the colours, according to direction, suiting them to the life of every thing, as nearly as you possibly can.

6. Having painted the picture, you may size it over as is before directed. Paste maps or pictures upon cloth thus; wet the sheet of cloth in the size, wring it out and strain it upon a frame, or nail it to a wall, and so paste the maps or pictures upon it.

7. If you intend to varnish your pictures, &c. having thus fix'd it in a proper frame, varnish it with a proper varnish. See VARNISH.

*As for tempering the Colours, do as follows.*

1. As for such colours as are ground in fair water, put a little of them into a horse muscle-shell, with some gum-water, and bruise it with your finger against the shell, to soften and temper it, till you find no knobs undissolved, and then stroke down the colour to the bottom of the shell from the sides, with a small brush, and then it will be fit for use; and if it be too thick, you may add more gum-water to it.

2. As for those colours that are wash'd, they are to be tempered after the same manner as the former.

3. Such as are steep'd, the liquor only of them is to be used, without any other preparation.

*How to lay on the Colours.*

Provide your self with pencils of several sizes, have by you a cup or gallipot of fair water, to wash your pencils, and a clean cloth to wipe them, if you take them out of one colour, to put into another.

In chusing pencils, take such as are fullest next the quill, lessening gradually to a sharp point, which you should try by wetting them in your mouth, and drawing them once or twice through your lips. If you perceive in your pencils any straggling loose hairs, singe them off with a candle.

If you would lay any colour about the edges of your map, &c. or plan of a surveying of any field, or piece of ground, with yellow:

Take a little yellow in your pencil, and draw the colour along of an equal breadth, on the inside of the black-lead line.

WATCH-



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WATCHFULNESS, is represented [*in Painting*] in a yellow robe, a fable mantle fring'd with silver, and seeded with waking eyes; and a chaplet of *turnsole*; holding in her right hand, a lamp, and in her left, a bell.

To LIMN WATERS and FISH.

Do *Water* at a distance with white and *indigo*, shaded with *indigo* mixt with *bice*, and heighten'd with white; if near the horizon, much like the sky.

*Waters that are near* are to be laid with stronger *indigo*, heightened and shadowed with the same, mix'd with *bice*, and lastly heightened with pure *white*.

*Waters nearer* with stronger *indigo*, shaded and heightened as before.

*Waters and fields overflown*, with *pink* and the like, always imitating nature.

*Fish in green waters* with *indigo*, mixt with *French-berry* yellow, shaded with a thin *Indian-blue*, and heightened with pure white.

*But fishes are to be done according to their nature and colour; for some are yellow, some brown, some speckled, some grised, some black, &c. in all which, to keep in figure the true idea, you ought to take directions only by the life.*

A WATER that will give light in a dark night.

Take *glow-worms*, pound them and put them into a glass vial, which close up and set in hot horse-dung for 15 days; after which, distil it in a glass alembick, and put the water that shall come from it into a crystal vial, and it will give so great light, that you may see to read by it.

A WATER to make a light in a chamber by night.

Put unslaked lime in water, leaving it there till it is clear, then put it in a vial; set it in a chamber, and you will see great light.

### WATERING STUFFS.

Take a sufficient quantity of water, and gum-tragacanth an ounce; dissolve it in the water, making a clear thin water; then wet 10 yards of *stuff* with the same water hot, all over, and put it into a press; let it lie a pretty while, and turn it twice; after this, squeeze the press pretty hard, and so let it stand till it is cold.

This gum-water ought to be pure, thin and clear, otherwise the folds of the stuff will stick together; it must also be done very hot, else it will not penetrate; and the stuff, &c. is to be thoroughly wet therewith, yet not too wet.

What sort of WATER is best to dye with.

It is common to use running, or river-water, either of great rivers or rivulets, for the less valuable stuffs and dyes.

But it is very well worthy of observation, what difference there is of rivers; some being very clear and bright, others very thick

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thick and muddy; those that are clear, are the best: but if the last are drawn out, and let stand to settle for 24 hours they are good, tho' not so good as the other.

In the next place it ought to be consider'd, whether the water be hard and rough, or smooth and soft; and the proof to distinguish their quality, is very easily made in the boiling of vegetables; particularly peas, or lentils; by setting them over the fire, one part in running, or river-water, and one part in spring-water; and boiling them for an hour, or an hour and an half, and that pot where the peas are softest, without doubt, had the softest water.

But above all, nitrous waters are to be avoided; and if one is constrained to use them, it will be very proper to correct them as follows.

### *To soften hard or harsh WATER.*

If a water is nitrous, or something a-kin to the nature of lime, 'tis utterly unfit for dying; but if a person is constrain'd to use it, the following process will rid it of all its ill qualities.

Fill a large copper with the water, and put into it 2 or 3 handfuls of wheaten-bran; then having heated a brick, or piece of plaister very hot, throw it into the copper, cover it very close, and let it stand 24 hours, and then draw it off, and it will be perfectly fit for use.

Or, throw always a handful of wheaten-bran into the first suds, and let it boil, and you will find that it has corrected the water, and will render the stuffs more limber.

**WATER**, *with Jewellers*, is properly the colour or lustre of diamonds and pearls; thus called, by reason these were anciently suppos'd to be form'd or concreted of water.

**WAX** is a soft, yellowish matter, whereof the bees form their cells to receive their honey.

*Wax* is not the excrement of the bee, as the ancients and many of the moderns have imagined.

It is properly a juice exuding out of the leaves of plants, and adhering to the surface of them; from off which the bees scrape it with their rough thighs, to build their combs with it.

It is chiefly afforded by *lavender* and *rosemary*; from which last any one may gather *wax*, and by the help of a microscope, the *wax* may be plainly seen sticking to the leaves of the plant.

Naturalists have generally imagin'd, that *wax* is gather'd from the flower; some from the *Petala*, and others from the *Apices*: but *Boerhaave* affirms, that it is a juice peculiar to the leaves, and not afforded by the flowers, which only yield honey.

The *wax* is a hard substance, and gathered only with the fore-legs and chaps; convey'd thence to the middle legs, and thence to the middle joint of the hind legs, where there is a small cavity,

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vity, like the bowl of a spoon, to receive it, and where it is collected into heaps, of the shape and size of lentils.

When the bee is arriv'd at his hive with his load of *wax*, it finds some difficulty in unburthening himself of so tenacious a matter; and frequently being unable to lay it down himself, he calls for assistance by a particular motion of his legs and wings: whereupon a number of his companions immediately run to his help, and each with his jaws taking off a small quantity of the *wax*, others succeeding in their place, 'till they have quite disburthened their laden fellow.

There are two kinds of *wax*, *white* and *yellow*; the *yellow* is the native *wax*, just as it comes out of the hive, after it has been discharg'd of the honey, &c. and the *white* is the same *wax*, only purified, wash'd, and expos'd to the air.

### *The preparation of yellow Wax.*

To procure the *wax* from the combs for use, after the honey has been separated from it, all the matter that remains is put into a large kettle, with a sufficient quantity of water; and it being melted by a moderate fire, it is strained through a linnen cloth in a press; and before it is cold, it is scumm'd with a tile, or a piece of wet wood; and while it is yet warm, cast in wooden, earthen, or metalline moulds, they having been first anointed with honey, oil, or water, to prevent the *wax* from sticking to them.

Some in purifying it make use of *Roman vitriol*, or *copperas*; but the true secret is to melt, scum it, &c. properly without any ingredients at all.

The fæces, or dregs remaining in the bag, after the bag has been press'd out, is us'd by surgeons, farriers, &c.

### *The whitening of Wax.*

This whitening, or blanching of *wax*, is perform'd by reducing the yellow sort first into little bits or grains, which is done by melting it, and casting it, while hot, into cold water; or else by spreading it into very thin leaves or skins.

This *wax*, having been thus granulated or flattened, is expos'd to the air on linnen cloths; where it lies night and day, having equally need of sun and dew.

Then it is melted and granulated over again several times, laying it out to the air in the intervals between the meltings.

At length the sun and dew having perfectly blanch'd it, it is melted for the last time in a large kettle; and laded out of the kettle with a ladle, upon a table covered over with little round dents or cavities, of the form of the cakes of *white wax*, usually sold in apothecary's shops; those moulds having been first wetted with cold water, that the *wax* may be got off the easier.

Lastly,

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Lastly, they lay these cakes out into the air for two days and two nights, to render it the more transparent, and drier.

This *wax* is us'd in making candles, tapers, flambeaux, torches, and for various other purposes.

*Yellow Wax* is made soft with *turpentine*, yet retains its natural colour.

*Red Wax* is only the *white* melted with *turpentine*, and made red with *vermilion*, or *orcanette*.

Burnt paper, or lamp-black, makes it *black*, and *verdigrase* makes it *green*.

Some travellers inform us, that there is a natural *black wax*; affirming, that there are bees both in the *East* and *West-Indies*, which make an excellent honey, included in black cells. And that of this *wax* it is, that the *Indians* make those little vases, wherein they gather their balsam of *Tolu*.

*Virgin Wax*, call'd also *Propolis*, is a sort of reddish *wax* us'd by the bees to stop up the clefts or holes of their hives. It is apply'd, just as it is taken out of the hive, without any art or preparation of boiling, &c. it is the most tenacious of any, and is held good for the nerves.

*Sealing WAX* } Is a composition of *gum lacca*, melted and  
*Spanish WAX* } prepar'd with rosin and chalk, and coloured red with ground *cinnabar*.

*Waxen Figures for Portraits*, are cast in *moulds of plaister*, and coloured afterwards as the artist pleases.

It is no new invention; *Lysistrates* of *Sicyone*, *Lysippus*'s brother, *Pliny* tells us, was the first that thought of making moulds, even on the faces of persons; but neither ancients nor moderns valued much those, that apply'd themselves to this sort of work, if they were not besides excellent sculptors, or able painters. For there is a great deal of difference between what is made in *wax* from a model, and what is only cast in a *mould*, and painted over.

Figures are not only made in *wax*, but all sorts of fruits, which are painted according to their natural colours.

*To cast Figures in Wax, Plaister, PASTE, Metal, &c.*

*To cast the figures of Animals.*

When you have your figure ready for moulding, oil it, and take off the hollow mould in *plaister*, after the following manner;

Having oiled it well, lay it on potter's earth, and make choice of those parts of it, most convenient to take off, and there make an edging, or border, of the like earth; having done this, cast your *plaister*, well-tempered, not too thick nor too thin, and that part being well bak'd, lift it up gently, in as few pieces as you can; repair the edges, and make little notches with a knife, the edge being oiled to put them exactly together again.

After

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After this manner, place a border or edging of the same earth; in the place from whence you took the part of your figure, which being done, cast your plaister as before, and so lift up your piece to repair it: then putting it into its place, continue to do thus, 'till all is done; which being well dry'd, dress the outside of the mould with a flat smooth piece of iron; and when it is well harden'd, mark the pieces one after another, dry it leisurely, and join and tie them together with a small cord, and so you will have a compleat hollow mould of plaister, which as the pieces are more or less difficult, may accordingly be made of more or less pieces.

### *How to cast a hollow figure.*

Supple the inside of your mould of paste, 'till it will drink in no more oil; then dry it with cotton-wool, and tie all the pieces together with small cord; then look out for a convenient mouth, or casting-place, and so melt your *wax*, made fine with a little *turpentine*; and when it is neither too hot nor too cold, run it into the mould; if your figure be but small, fill it, and after a little time take out the stopple of the mouth, and suddenly turn the figure upside down, that the remaining *wax* may run out; and when you perceive it is sufficiently cold, open it, and you will have a hollow *wax* figure.

If you find it too thin, let the next remain longer in the mould; if too thick, pour out what remains sooner; and these figures, when repair'd and polish'd, may be painted to any lively colour.

### *How to put an inward mould, or kernel, into any waxen figure, &c.*

If your figure be of a living creature, with a moderate hot knife divide it into two parts, either lengthways or overthwart; then take potter's earth mix'd with a little fine charcoal dust, moistening and beating them with a little iron rod, 'till all is well incorporated, and as soft as paste, and with this paste fill the inside of the waxen figure; which being dry, cover the outside of each piece, where they are to be joined with the like earth, very thin and moist; but take care that it does not run over the edges of the *wax*, and having join'd it, repair it with a thin piece of copper or iron warm upon the joint: then make a *git*, or casting-hole in the most convenient place, and let it be long enough with breath-holes.

If you conceive any part of the figure, to which the metal will not conveniently pass, then roll up little pieces of *wax* to the thickness of a goose-quill, or according to the size of the figure, which with a heated instrument stick to some part of it, that the end may reach the place suspected, where the metal will not easily run, and there fasten it; then take little tags or iron about that bigness, and about half a finger in length, proportion-

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portionable to the thickness of the *wax* of the innermost mould, and thrust these quite through the figure, to the intent that the kernel, being in all parts supported, it may not touch or join to any part of the outward mould.

*To make the cases or facings, &c.*

Take founder's earth very fine, and steep it in a vessel of earth, fill'd with fair water, and by inclination pour it into another, that the droffy part may remain behind; then add to it some bone, mix them well together, and with a large pencil give a smooth laying of the earth on the waxed figure; dry it, and do so six times; and when it has had the last drying, strengthen it with potters clay, well mixed and beaten with hair, and that being dry, set the mould over the fire on iron rods, in the form of a gridiron; but take care, that the *wax* do not boil within the mould, lest it break it. Then lean it on one side, that the *wax* may all run clear out at the casting mouth; then heat the figure over a gentle fire, 'till it be well hardened, and melt the metal you intend to cast the figure into, in a good heat, and have two crucibles in the fire, one empty to pour the metal into, that the dross and scum may not remain in it.

And when it is at a proper heat, set the mould fast in sand, pour in the metal, and let it thoroughly cool; so by breaking your mould, you will have a perfect figure without scum; but if the figure be large, you must bind the mould with nealed wire, lest the weight strain and flaw it.

*Red Sealing Wax.*

Take one pound of *bees-wax*, three ounces of fine *turpentine*, one ounce and an half of *red lead* and *vermilion* finely ground, *olive-oil* an ounce, melt the *wax* and *turpentine*, and one ounce of *rosin* finely powdered; when they are well melted, and the dross taken off, put in the *red-lead* or *vermilion*, and stir them well together 'till they are well incorporated; and you may, when it grows a little cool, make it up into what form you please.

*To make an ordinary red soft sealing Wax.*

Take common *bees-wax* two pound, *turpentine* six ounces, *oil of olive* two ounces; melt all these together, then add six ounces of *red-lead*; boil them a little, and stir 'till it is almost cold; cast it into fair water, and make it up into rolls or cakes.

*To make fine red hard sealing Wax.*

Take pure fine *shell-lac*, melt it in an earthen vessel, and put into it a sufficient quantity of the colour you design the *wax* to be of. To every half pound of *gum lac*, put an ounce and an half, or two ounces, of purely fine ground *vermilion*; mix them well over the fire, and when it is of a fit coolness, make it up into rolls or cakes.

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*You may set a gloss upon it, by gently heating it over a naked charcoal fire, and rubbing it with a cloth 'till it is cold.*

*To make the best red soft Wax.*

Take white *bees-wax* two pounds, *Chio turpentine* six ounces, *oil of olive* six ounces, mix and melt them together, then add pure *vermilion* well-ground two ounces, mix and boil them a little, stir them 'till almost cold, cast it into cold water, and then make it up into rolls or cakes.

*To make black soft Wax.*

Take *bees-wax* one pound, *turpentine* three ounces, *oil-olive* one ounce, mix and melt them together; to which mix black earth, or *lamp-black*, or *ivory-black* finely ground, one ounce, mix and melt, &c. as before.

*To make coarse hard sealing Wax.*

Take *shell-lac* six ounces, *rosin* six ounces, fine *vermilion* three ounces; melt and mix them together, and when in a due state as to heat and cold, make them up into sticks or rolls, which you may set a gloss upon as before directed.

*To make fine hard sealing Wax of other colours.*

*Green sealing Wax* is made after the same manner, and in the same proportions as fine hard red sealing wax, by mixing with the ingredients *verdegrease* instead of *vermilion*.

*Blue sealing-wax* is also made after the same manner, by putting in fine *blue smalt* or *ultramarine*.

*Purple sealing-wax* is so made, by putting in *vermilion* mixt with *ivory-black*, or *lamp-black*.

*Black, hard, coarse sealing-wax, is made with ivory-black.*

*To make yellow sealing-wax.*

This is done as the rest, with finely-ground *auripigmentum*, or yellow *masticote*.

*To make green soft wax.*

Take *bees-wax* one pound, *turpentine* 3 ounces, *oil-olive* one ounce; mix and melt them, then add fine *verdegrease* one ounce; mix, and make the wax up, as the others.

*To make yellow soft wax.*

Take yellow *bees-wax* one pound, *turpentine* 3 ounces, *oil-olive* one ounce; mix and melt them, then add *gambooge* in fine powder 2 ounces, *auripigmentum* finely ground one ounce; mix, and make the wax as before.

*To make perfum'd soft Wax.*

This is done by mixing ten ounces of any of the former compositions, oil of *rhodium* a drachm, musk in powder a scruple, *civet* half a scruple, mixing them well.

*After the same manner you may make soft Wax of all colours, having what scent you please, by mixing the perfume you would*



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would have either with the oil of olive before-hand, or else by working it into the composition of the *wax* after it is made.

*To make golden or transparent Wax.*

Take four ounces of *clarified rosin*, two ounces of *turpentine*, four ounces of *bees-wax*, and two ounces of *olive oil*; melt them well together, and scatter in the melting disorder'd or shatter'd leaf-gold, and suffer it to mix or incorporate; then polish it over when made into sticks, &c. and the gold will appear.

WEeping [in *Drawing*,] is imitated in the following manner: a person weeping, has his eye-brows hanging down in the middle of the forehead; the eyes almost closed; very wet, and cast down towards the cheeks; the nostrils swell'd up, and all the muscles and veins of the forehead apparent.

The mouth is half open, the corners hanging down, and making wrinkles in the cheeks; the under-lip appears turn'd down and pouting out; the whole face appears drawn together and wrinkled; the colour very red, especially about the eye-brows, eyes, nose, and cheeks.

WEST is represented [in *Painting*, &c.] by an old man in a russet garment, with a red girdle, in which are *Gemini*, *Libra*, and *Aquarius*. He is muzzled; a star on the crown of his head; his right arm extended towards the earth, with his little finger he shews the *west* part, where the *Sun* sets; with his left he holds a bundle of poppies. The air duskish, and bats flying.

His garment denotes the *Sun's* setting and almost deprived of light; the star *Hesperus*, over his head, as appearing in the *west* in the close of the evening; the poppy, *sleep*, being a soporiferous plant.

WHITE is one of the colours of natural bodies: but it is not so properly said to be of any colour, as a composition of all colours.

It is demonstrated by Sir *Isaac Newton*, that those bodies only appear *white*, which reflect all the kinds of colour'd rays alike.

*Hevelius* affirms it as a certain truth, that in the *northern* countries, animals, as *hares*, *foxes*, *bears*, &c. become *white* in the winter time, and in the summer resume their natural colours.

*Black* bodies are found to take heat sooner than *white* ones, by reason that *black* ones absorb or imbibe rays of all kinds and colours, and *white* reflect all.

Thus *black* paper is sooner put into a flame by a burning-glass than *white*; and *black* cloths hung up by the *dyers* dry sooner than *white* ones.

WHITES for painting in MINIATURE.

The best *white* that is pretended to be sold for painting in water colours, is *flake white*, which is better than *white lead*

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ground; and if it be pure, far exceeds it in beauty, because *white lead* is apt to turn blackish, especially if it be used in a hard water.

But some recommend a *white* made of *pearl* or the whiter parts of oyster-shells, reduc'd into an impalpable powder so soft, as to feel like grounds of starch or hair powder: this is by some call'd *pearl-white*; but it is difficult to be come by. This *white* will mix well with any colour.

But if you use *white lead*, first rectify it with *white-wine vinegar*, this will cause a fermentation, and the *white* will soon settle; then pour off the *vinegar*, and wash it with common water. The method of washing it is thus:

Put the Powder into a glass of water, stir it about, and presently pour off the water, while it is *white*, into some other clean glass or vessel; let it settle, and then pour off the water from it, and it will be excellently fine.

When this *white* is settled, put to it as much gum-water as is necessary to bind it or give it a glaze.

It is observable, that *white lead* will turn black, if mix'd with water that comes from iron or clay; that is, in the space of a month or two, you may perceive those places where it lies thickest ting'd with *black*, and if it be mix'd with any other colour it will soon change or alter it.

Some recommend the powder of egg-shells of the brightest colour and well clean'd and wash'd, as very good to be ground with gum water; or you may put about a twentieth part of clear white sugar candied to grind with it in water; grind it as fine as possible, that is, to the state of what is call'd an impalpable powder, and then use it.

Some say it is better, if some rectified spirits of wine be pour'd on it, which will clear it from any dross that may be in it; this (as it is very probable) must be pour'd off, when the spirit of wine has done its work, and then the parts left behind, must be mix'd with gum-water again.

But it has been found by experience, that egg-shell powder is of very great service as a *white* in water-colours, and that that it self and the powder of oyster-shells well rectified and mixed with the white of an egg well beaten, will make an extraordinary mixture in other colours, and will correct them from changing or altering their qualities.

But as for *white* for illuminating of prints, the clear *white* of the paper is proper to be left uncolour'd; and if it happens that the paper is apt to sink, or to spread any water-colour that is laid upon it more than is necessary, then the way to correct it is as follows:

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Fix the paper in such a station, as may only receive the colour you lay on to glaze, just as far as you design'd it; then take some starch boil'd and prepar'd in water of a middle strength, and with a large painting-brush stroke it over the back of the print; and after it has been well dry'd in the air or sun, put the print in a book with a weight upon it, to take out the crumpings, which it may receive by wetting of it; and so will any print be render'd fit to receive water-colours, and prevented from running farther than we would have them.

There is a sort of earth that comes from *China*, that is of a very soft nature, and very *white*; which does better in water-colours than any of the rest; but it is very scarce.

*Of making WHITE colours.*

*A fine WHITE for water-colours.*

Dissolve filings of fine silver, or leaf-silver, in *aqua-fortis* or spirit of nitre, then evaporate the *aqua-fortis* till it looks like crystals in the bottom of the glass: decant the other part of the *aqua-fortis*, and wash the silver five or six times in common water, till it be freed from the *aqua-fortis*, which may be known by tasting it; then dry it for use. It must be used with gum-water, with a little water of sugar-candy.

*An incomparable fine WHITE LEAD.*

Take choice *white lead*, grind it well upon a porphyry with vinegar, and it will turn blackish; then take a pot full of water, and wash the *white lead* in it very well; let it settle, and pour off the water; grind it again with vinegar; repeat this once or twice, and you will have an excellent *white*, both for water-colours and painting in oil.

*To make the WHITE to be used with glove-leather size, for making a very fine polish'd gold.*

Having made the *size*, scrape some *crayon white* with a knife, or grind it upon a marble; melt and heat your *size* as hot as can be, then take it off the fire, and put in *white* enough to make it of the consistence of pap, let it stand to infuse for a quarter of an hour; then stir and mix it with a *hog's* hair-brush.

Add more *size* to this *white*, to make it thinner, for the first and second goings over.

Let your first lay be dry before you go over it with a second; and if it be wood you work upon, you ought to repeat it twelve times; but if it be paste-board, six or seven will be sufficient.

When this has been done, dip a soft brush in water, and strain it between your fingers, and brush your work over with it, to cause it to lie more smooth and even. As soon as your brush is full of *white*, you must wash it over again, and even change

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the water; when it is too *white*, you may use a wet cloth instead of a brush.

When the work is smooth and even, let it stand to dry; and when it is dry, rub it over with shave grass, or a piece of new cloth, to make it the kinder.

To WHITEN *green or grey Flax*.

First make a lye of good *ashes* and unslak'd *lime*, and steep the *flax* in it for twenty-four hours; and afterwards add some *sal-armoniac* put into the middle of some unslak'd *lime*, and a few warm *ashes*; pour off the water, and make a sharp lye, and boil the *flax* in this lye for an hour or two, and you will find it become very *white* and bright, and that the *sal-armoniac* is fix'd.

When the *flax* has been steep'd in the lye, boil'd, and well dry'd, then it must be rinsed very well in running or river water, and blued and wrung out with the hands. See BLEACHING.

To discover WHITE upon BLACK with an iron pencil.

Having well cover'd your frame or other piece of work with a *white ground*, well varnish'd, polish'd and rush'd; take lamp-black, and having ground it with yolk of egg, make trial of it apart, to see whether the black, when fixt, will burnish very bright. You must size your black as much as it is necessary to make it stick.

Colour your frame, &c. with this *black*, lay it on well, dry it, and burnish it with a tooth; then take an awl or bodkin of iron, sharpened and flatted at the end like a chizel, of such breadth you would have your fillet to be, and with a ruler and this iron thus sharpen'd, draw fillets, scraping off the *black*, till you come to the *white*.

You may also, if you please, with a bodkin make Moresk works, which you may hatch into every leaf; as also other branch'd works, the imbossment of which, you may make by scraping off the black with an iron bodkin, till you can see the *white*, still keeping your iron-tool sharp and smooth.

By this means your work will be of a fine *black*, well burnish'd or polish'd like marble, in which you will have branch'd works that will seem like ivory inlaid in wood.

If your figures appear too much shadow'd, after you have drawn out all your work with a bodkin, take one or more irons like a folding-stick or rather blunter, as you shall see convenient; let it be well smooth'd and harden'd, and with it rub the figures as evenly as is possible, till no *black* appears any longer; but not suffering the iron to enter any farther than the superficies of the *white*; that is, when the *black* shall be rubb'd off, and the figure shall appear very *white* and smooth; and afterwards with

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a tooth burnish the *white* you have laid bare: and lastly with a small pencil, you shall draw the lines and hatch the shades, as if it were horn engraven or carv'd.

*How to make upon an open WHITE GROUND fillets and branch'd work.*

First lay your frame or other work with boiling size, as is directed for laying upon *white* to gild with burnish'd gold; and having siz'd it, take lamp-black well ground with water, then size it as the *white*, and go over your work with it five or six times, and afterwards rush it: then grind some of the same *white*, and grind it with as much yolk of egg as may make the *white* polish, and go over the work once or twice with this; and when it is dry, burnish the *white* with a tooth, then with your iron draw upon the *white fillets, branch'd works or portraits*, according to your fancy, till the *black* appears.

The freezes of your frame will seem to be of ivory, and the *black* will seem to be engraved, or pieces of *ebony* inlaid in *Ivory*.

But to make it the better to resemble ivory, you should have by you a little piece of polish'd ivory, the better to represent its colour, which is not so white as chalk; but a little inclining to yellow, and this may be imitated by grinding with your chalk a little yellow *oker*, or a little pale *masticote*, or the bones of sheep's trotters burnt and ground to powder.

WHITENESS is the quality which denominates a body white. But Sir *Is. Newton* shews that *whiteness* consists in a mixture of all the colours; and that the light of the sun is *white*, because consisting of rays of all colours.

From the multitude of rings of colours which appear upon compressing two prisms, or object-glasses, or telescopes together, it is manifest, that these do so interfere and mingle with one another at last, as after 8 or 9 reflections, to dilute one another wholly, and constitute an even and uniform *whiteness*.

From whence, as well as from other experiments, it appears that *whiteness* is certainly a mixture of all colours; and that the light which conveys it to the eye, is a mixture of rays endued with all those colours.

He also shews that *whiteness*, if it be most strong and luminous, is to be reckoned of the first order of colours; but if less, as a mixture of the colours of several orders: of the former sort, he reckons white metals; and of the latter, the *whiteness* of *froth, paper, linen*, and most other white substances.

And as the *white* of the first order, is the strongest that can be made by plates of transparent substances, so it ought to be stronger in the denser substances of metals, than in the rarer ones *air, water, and glass*.

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*Gold*, or *copper*, mix'd either by fusion or amalgamation, with a very little *mercury*, with *silver*, *tin*, or *regulus* of *antimony*, become *white*; which shews, both that the particles of white metals have much more surface, and therefore are smaller than those of *gold* or *copper*; and also that they are so opaque, as not to suffer the particles of *gold* or *copper* to shine through them.

And as he doubts not, but that the colours of *copper* and *gold* are of the second and third order, therefore the particles of *white metals*, cannot be much bigger than is requisite to make them reflect the white of the first order.

THE WILL is represented [*in Painting*, &c.] by a maid purblind, having wings on her back and feet; a gown of changeable taffata, and acting like one groping out her way in the dark.

Blind, because seeing nothing herself, she walks after sense by groping. Her changeable robe, her wavering between hope and fear; the wings denote her restless condition, having found no rest on earth, she makes a generous effort towards heaven, by the wings on her feet.

### SPIRIT of WINE.

It is of very great use in varnishing; but if it be not properly prepar'd, it will spoil the varnish; not being capable, for want of strength, to dissolve the gums, or make them spread; and so of consequence, lie uneven upon the work.

*To know when this spirit is sufficiently rectified;*

Put some of it into a spoon, and put a little gun-powder into it, and if it burns out, blows up the gun-powder, and leaves the spoon dry, then it is a good spirit; but if it fails of doing this, and leaves the spoon moist when the flame goes out, it is not fit for use.

WIRE, a piece of metal drawn thro' the hole of an iron, into a thread of a fineness answerable to the hole it passed through.

*Wires* are frequently drawn so fine, as to be wrought along with other threads of *silk*, *wool*, *flax*, &c.

The metals most commonly drawn into wire, are *gold*, *silver*, *copper* and *iron*.

*Gold*, and *silver-wire*, is made of cylindrical ingots of silver, cover'd over with a skin of gold, and thus drawn successively through a vast number of holes, each smaller and smaller; till at last it is brought to a fineness, exceeding that of a hair.

That admirable *ductility* which makes one of the distinguishing characters of gold, is no where more conspicuous, than in this gilt *wire*.

A cylinder of 48 ounces of *silver*, cover'd with a coat of *gold*, only weighing one ounce, as Dr. *Halley* informs us, is usually drawn into a wire, two yards of which, weigh no more than one grain; whence, 98 yards of the *wire* weigh no more than 49 grains,



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grains, and one single grain of gold, covers the 98 yards; so that the ten thousandth part of a grain, is above  $\frac{1}{8}$  of an inch long.

He also computing the thickness of the skin of gold, found it to be  $\frac{1}{114500}$  part of an inch. Yet so perfectly does it cover the silver, that even a microscope does not discover any appearance of the silver underneath.

M. *Robault* likewise observes, that a like cylinder of *silver*, covered with *gold* 2 feet 8 inches long, and 2 inches 9 lines in circumference, is drawn into a *wire*, 307200 long, *i. e.* into 115200 times its former length.

Mr. *Boyle* relates, that 8 grains of *gold* covering a cylinder of *silver*, is commonly drawn into a wire 13000 feet long.

*Silver wire* is the same with gold wire, except that the latter is gilt, or covered with gold, and the other is not.

There are also counterfeit *gold* and *silver-wires*; the first made of a cylinder of copper, silvered over, and then covered with gold; and the second of a like cylinder of copper, silvered over, and drawn through the iron, after the same manner as gold and silver-wire.

*Brass-wire* is drawn after the same manner as the former. Of this there are divers sizes, suited to the different kinds of works. The finest is used for the strings of musical-instruments, as spinets, harpsicords, manichords, &c.

The pin-makers likewise use vast quantities of wire, to make their pins of.

Iron-wire is drawn of various sizes, from half an inch, to one tenth of an inch diameter.

The first *iron* that runs from the stone when melting, being the softest and toughest, is preserved to make wire of.

WISDOM is represented [in *Painting*,] cloth'd in a blue mantle, seeded with stars.

HUMANE WISDOM is represented [in *Painting*] by a youth with four hands, and four ears, a quiver by his side, a recorder in his right hand, and a lyre in the other; sacred to *Apollo*.

The hands denote use and practice, necessary to get wisdom, besides contemplation; the ears, that to hear others is requisite; the flute and quiver, that one should not be too much taken with encomiums of one's self, nor unprovided in case of offence.

WILLIAM WISSING was a face-painter, bred up under *Dodaens*, a history-painter at the *Hague*; upon his coming over to *England*, he worked some time for Sir *Peter Lely*, whose manner he successfully imitated, and after whose death, he became famous. He painted king *Charles II.* and his queen, king *James II.* and his queen, the prince and princess of *Denmark*, and was sent over to *Holland* by the late king *James*, to draw the prince and princess of *Orange*; all which he performed with applause.



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plause. What recommended him to the esteem of king *Charles*, was his picture of the duke of *Monmouth*, whom he drew several times, and in several postures; he drew also most of the court, and was competitor with Sir *Godfrey Kneller*, who was at that time upon his rise. In drawing his portraits, especially those of the fair sex, he always took the beautiful likeness; and when any lady came to sit to him, whose complexion was any ways pale, he would commonly take her by the hand and dance her about the room till she became warmer, by which means he heightened her natural beauty, and made her fit to be represented by his hand. He died much lamented, at the age of 31, at the late earl of *Exeter's* (*Burleigh-house* in *Northamptonshire*) and lies buried in *Stamford* church, where that noble peer erected a monument for him, with a *Latin* inscription.

WIT is represented [in *Painting*,] in a discoloured mantle.

DYING of WOOD, *Horns and Bones*.

*To dye elder, box, mulberry-tree, pear-tree, of the colour of*  
EBONY.

Let the wood lie in steep in *alum-water* for 3 or 4 days, then boil it in common oil, with a little *Roman vitriol* and sulphur.

*Where take notice, that the longer you boil the wood, the blacker it will be; but if it be boil'd too long, it will make it brittle.*

*To do this according to Glauber.*

Distil in *aqua-fortis*, *salt-petre* and *vitriol*, and with this besmear the wood, as often as you see occasion.

*To dye WOOD RED.*

First boil it in *alum-water*, and afterwards put it into a tincture of *Brazile-water* for a fortnight or 3 weeks, or into a tincture of *Brazile* and *milk*.

*To dye WOOD BLUE.*

First boil it in *alum-water*, and then put it into a dissolution of *indigo* and urine.

*To dye WOOD GREEN.*

Put as much filings of copper into *aqua-fortis* as it will dissolve; then put in the wood, &c. and let it lie all night, and it will tinge it of a fair green.

*To inlay WOOD with figures.*

To do this with mother-of-pearl, break the shells, and cut them according to the forms of the figures you design; and after you have cut the wood with gouges, put them in.

Thus you may imitate all sorts of fruits; for you will find some green, some yellow, some blue, some purple: so that if you would imitate a black grape, the leaf of a tree, or other fruit, you have a suitable colour.

Make a small hole through every piece, pinning it with a small piece of silver wire, to make it stick fast; then take *linseed-oil*  
and

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and *orcanet* ; rub it well, and wipe off the oil clean ; when it is dry, varnish it with the drying varnish.

Also (not oiling it) you may make very fine compartment-work, in fine threads that will look like silver ; thus make a set of small gouges of all sorts, very sharp ; and with these, cut your design.

Then melt *tin*, adding to it the same quantity of *quicksilver* ; stir it with a stick ; being cold, put it in the palm of your hand ; if it be too soft, add a little more *tin* ; grind this composition with water upon a marble ; put the composition into a shell, and with it, fill up the engravings and cuttings which you have made with your gouges ; then let your work stand 2 or 3 hours to dry ; and then polish it with your hand, and it will look like silver.

By adding more *quicksilver*, you may make a thinner composition, which you may rub into the indentures you have cut, till it be as bright as silver ; or instead of *tin*, you may mix leaf-silver with the *quicksilver*, which will add to the beauty of the work.

This is commonly practised upon black and coloured wood, polishing them with a tooth.

If you would have the composition more beautiful, grind *tinglass* and wash it till it leaves the water clear ; then mix it in a shell with some gum, and fill up the engravings with it, with a pencil ; then let it lie for 3 or 4 hours to dry, and quicken it with the composition of *mercury* and *leaf-silver*.

*To make WOOD of divers Colours.*

*For a red.*

Take half a pound of *Fernambouc*, or what other you think fit, rain-water, a handful of *quick-lime*, and two handfuls of ashes ; let them steep for half an hour in the water, and settle to the bottom ; then take a new earthen pot, and put in the *Fernambouc*, with the lye made of lime and ashes ; and having steep'd half an hour, boil it. Then let it cool a little, and pour it into another new pot, adding to it half an ounce of *gum-Arabick* ; then put some rain-water and a piece of *alum* into another pot or pan ; boil it, soak the wood in this alumed water, then take it out and dry it ; then warm your red colour, and with a brush, rub it as long as you think necessary ; then dry it and polish it with a dog's tooth, and it will be of a shining scarlet colour.

*Another excellent red.*

Boil *Brazile* in rain-water till it be high coloured, then strain it through a cloth ; but you must be sure, not to use any thing of iron about it, as ladle, &c. Then give your wood one laying or washing of saffron, steep'd in water, which will render it of a pale

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pale yellow; when it is dry, give it several washings of the *Brazile*-water, till the colour is to your mind; let it dry and burnish it with a tooth, and varnish it with drying varnish, with the palm of your hand, and it will be of a beautiful *red* inclining to *orange*. If you put a spoonful of lee amongst the *Brazile*, it will make the red deeper; or if you boil it with a little *alum*: but the yellowing it, improves the colour; and by how much the wood is whiter, by so much the more beautiful will the colour be.

### *Another red for WOOD.*

Reduce orchanet to fine powder, and mix it with oil of nuts, make it luke-warm, and rub the wood.

### *Another.*

Temper *Brazile* in oil of tartar, with which, rub over the wood, and it will become of an excellent *red*.

### *To stain WOOD of a yellow colour.*

This may be done either with French-berries and *alum*, or with *turmerick* or *saffron*, or *Merita*-earth.

### *A polish'd black for WOOD.*

Cover the wood with lamp-black, ground with gum-water, with a pencil; and when it is dry, polish it with a tooth, and it will look very well.

### *Another black dye for WOOD.*

Put little pieces of very rusty iron into good black ink, and let it stand for some days; afterwards rub the wood with it, and it will penetrate it, then polish it with a tooth, and it will look very beautiful.

### *To counterfeit ebony wood.*

The most solid wood, and freest from veins, is best; such as pear-tree, apple-tree, and service-tree; take any of these woods, and black it well, and when it is dry, rub it with a cloth; then having made a little brush with rushes, tied near the ends, melt some wax in a pot, mixing some lamp-black with it; then with the brush, throw on some of the wax, brushing it till it shine like *ebony*; then rub it with a cloth, and some of the wax.

The wood should be well polish'd and rush'd, before it is black'd.

*Holley* is the best of woods for counterfeiting of *ebony*. This is to be put into a hat-maker's copper, where he dyes his hats; and when it has been ting'd to the thickness of a six-pence (which you may know by cutting it) take it out and dry it in the shade, that it may the better imbibe the dye-water; then polish it with an iron, to take off the foulness of the dye; and afterwards, with rush, powder of charcoal, and sallet-oil; as is done to *ebony*.

The wood of *Tunis* polishes easily; it also burnishes well with a tooth, and is better to cut than *ebony*, which is very brittle.

*An*

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## *An excellent blue colour for WOOD.*

Boil a quarter of a pound of turnsole for an hour, in 3 pints of lime-water, and colour the wood with it.

## *A violet colour for WOOD.*

Temper *Dutch turnsole* with water, and strain it through a cloth; before it is used on your work, try it on a piece of white wood, to see if it be not too deep. When you have laid on the colour, put some of the same colour to a quantity of water, to render it very thin, and wash the wood with this, till it become bright; then dry it, burnish, and varnish it; and if the wood be white before, it will then be of an excellent blue.

## *Another Violet.*

Boil 4 ounces of *Brazile* and 8 ounces of *logwood* together, in 2 quarts of water, with an ounce of common *alum*; and in these, boil the wood.

## *A purple colour for WOOD.*

Steep turnsole as is directed for the *violet-colour*, and add to it, the tincture of *Brazile* boil'd in lime-water, and it will be an excellent purple: this ought to be varnished, both to beautify, and to preserve it.

## *A way of staining, or marbling WOOD.*

Grind white-lead and chalk together on a marble; put it into a pot, and temper it again with the yolk of an egg, beaten with water; then lay on this white with a large pencil; let it dry, and go over it again with the same; let it dry again, and then take a point made of a stag's horn; draw off the white, where and in what form you will; then sprinkle the lime mix'd with urine. The violet wood which dyers use, will become black as ebony; by sprinkling it with lime and urine, plum-tree and cherry-tree, turn of a deep red; the pear-tree and service-tree, turn reddish; walnut-tree grows black, by mingling some galls in powder, with lime and urine.

A pencil made of mutton-suet, rubb'd where you would draw with yolks of eggs, will do the same thing.

It will be excellent upon black cherry-tree, plum-tree, or any wood of a dark colour.

## *To make WOOD of a silver colour.*

Reduce *tin-glass* in a mortar, to fine powder; add to it water, and grind it to the fineness of paint; put it into an earthen pan, and wash it two or three times till it is very clean; and then mix clear glue with it, and having first warmed the wood, lay the mixture on it with a brush; let it dry, and polish it with a tooth.

## *To make WOOD of the colour of gold, silver, copper or brass.*

Pound rock-crystal very fine in a mortar, then grind it on a marble with clean water; then, put it into an earthen vessel with

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a little glue, warm it and lay it on your work, as above ; rub it with gold, silver or copper, and it will be of the same colour you rub it with, then polish it.

*To lay on pencil-gold or silver on WOOD.*

Temper the gold or silver with weak gum-tragacanth water, very clear ; lay it on the lights of your work, with a pencil, without touching the shadows, which are to be done with *indigo*, ground with a weak gum-*Arabick* water ; then varnish it with the drying varnish.

*The drying Varnish is made as follows.*

Mix spike-oil with gum-sandarach ; if it be too thick, add some oil : in making it, let it not have a greater heat than may be endured by the hands ; black wood, or wood dyed black, is the most proper for gilding.

*For silver upon WOOD.*

First lay the wood over with parchment-glue, and when it is dry, figure it as you think fit ; shadow and finish with water in which tallow has been boiled, heighten with silver, (as in that of gold) and then varnish it.

*To colour WOOD after the manner of marble.*

For a table, &c. first lay 7 or 8 layers of white, as tho' it were to be gilded with burnish'd gold ; then having ready ground black, not over-much siz'd, add thereto a little yolk of egg, and a little dry saffron ; lay it on, let it dry, and then burnish it exactly.

By this means you may counterfeit to the life, all sorts of marble, having a little experience in colours ; and make also all sorts of works ; as fretted work, flat work, ovals, &c.

Let there be in the colours, a little yolk of egg and saffron ; that is, in such as can bear it, colouring the marble with divers colours ; the colours must be laid on clear, like threads. You may also on such a ground before directed, pour out a shell of one colour in one place, then turning it shelving on one side, cause the colours to run, which will make veins ; and then take another shell, full of another colour, and do the like ; so continuing with all your colours.

Or else with a gross brush, lay all your colours very clear, near one another.

After the colours are dry, you may make use of the pencil to repair the defects ; then burnish your work, which will not be subject to dust or spoiling.

*To colour a frame with fine speckled red.*

Grind vermilion with water, then size it, and grind it with a drop or two of yolk of egg.

With this colour, speckle the wood of the frame with a pencil, and when it is dry, take lake ground with water, and a little size,

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two drops of yolk of egg, and with the end of the brush, spot it, letting remain as much white as you lay on red; then burnish it with a tooth, and gild the mouldings with burnish'd gold.

### *An exquisite way of enriching and beautifying* WOODEN WORKS.

First cover your wooden work with hot glue, then with the mixture of glue, and whiting upon this, lay the size for burnish'd gold, and lay on the gold and silver and burnish it; then having ground right *indigo* with yolk of an egg, and that being very thin and clear, lay it on the silver, so as that the silver may appear through it. When it is dry, pounce your paper pattern, being whitened with chalk; then with the same *indigo*, draw over the pounced strokes of your figure as neatly as you can, as if you were to draw a figure with a pen, upon paper; then with the same *indigo* made thinner, shadow it, and afterwards with *umber*; then heighten with a wooden point, by hatching the lights, then varnish the work, and it will seem to be enamelled.

#### *Another way, but more glorious.*

Instead of *indigo*, steep *Dutch turnsole* for a day or two in water, then strain it through a cloth from the dregs; grind and mix this water with the yolk of an egg, lay this on your silver, then with turnsole ground with *turnsole*-water, draw with a pencil what lines or figures you think fit, which you may shadow and hatch in the proper places, which heighten in discovering the silver, as before directed; then varnish the work.

#### *To make the ground of a purple colour.*

Boil *Brazile* in lime-water, and mix with *turnsole*-water. This will not last so well as that done with *indigo*, because the *turnsole* in time, is apt to turn red, and will stain the silver; therefore before you varnish, lay upon it the white of an egg beaten into glair, which will render it much more durable, and admirably beautiful.

#### *To enrich carv'd* WORK, or any sort of WOODEN work.

The wooden work, whether picture-frames, or other things, cover with burnished silver (as taught under the article *gilding*, &c.) and having made some *vellum*-glue, or parchment-glue, boil'd to a thick jelly, strain it through a cloth; let it stand to settle, and then strain it again; then with this glue, give one laying upon your work with a soft brush: if that be not enough, give a second; and then varnish it. But before you varnish, if you have a mind so to do, you may paint flowers, fruits, leaves, or birds, in water-colours, and in their proper colours; and varnish them, having first laid them over with glue.

*Note*, you may mix with your glue, either milk, or soap of *Alicant*.

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### *How to embellish a frame with green leaves.*

Take indigo, a little orpiment ground with water, inclining towards a greenish brown, mixing with about half a pint of your colour, the quantity of a muscle-shell of the yolk of eggs, and as much size as is requisite to make it.

Having first laid on your white in the same manner, as if you were to gild it with burnish'd gold; then paint the freezes of your frame with this brown colour, leaving your mouldings untouch'd, which you are before to gild with burnish'd gold.

Having thus prepar'd your work, you must either by pouncing, or other ways, draw what figures you please; then with *indigo* alone, ground with water, a little size, and a drop of the yolk of an egg, draw your figures or leaves, and shadow them; and in shadowing, sweeten, heightening them with green, *viz.* you must take *orpiment*, well ground with the *greenish-brown*, wherewith you laid the first layer upon your frame; then heighten it with *orpiment* alone, ground with water and size, and a little drop of the yolk of an egg among your colours, because it would dry in burnishing; for the yolk of egg serves only to make it burnish the easier.

But if you would paint your leaves in oil, you must burnish the first layer of *greenish-brown*, and then paint your leaves with drying oil, boil'd with litharge of gold; and instead of *orpiment*, you may, if you please, work with *masticote*.

### *To represent the whole WORLD in a glass.*

Take of the finest *sal-nitre*, what quantity you please, half that quantity of *tin*; mix them well together, and calcine them hermetically: then put them into a retort, to which adjoin a glass receiver with leaves of gold put into the bottom thereof; lute them well together, put fire to the retort 'till vapours arise, which will cleave to the gold: augment the fire 'till no more fumes ascend; then take away the receiver, close it hermetically, and make a lamp fire under it, and you will see represented in it, the sun, moon, stars, fountains, trees, herbs, plants, flowers, fruits, and indeed all things after a very wonderful manner. *Tho' this may seem strange, yet our author affirms it for a truth.*

FRANCIS WOUTERS was born at *Lyere* in the year 1614, and was brought up in the school of *Rubens*; he was a good painter of figures in small, chiefly naked, as also of landskips; his merits promoted him to be principal painter to the emperor *Ferdinand II.* and afterwards coming into *England* with that emperor's ambassadors, he was upon the death of that prince made gentleman of the bed-chamber, and chief painter to king *Charles II.* then prince of *Wales*. He lived a considerable time in *London* in great esteem, and at length retir'd to *Antwerp*, and there died.



# W R I

## *To WRITE with Gold and Silver.*

Grind *gum-armoniac* with a little juice of *garlick*, and put to it a few drops of weak water of *gum-Arabic*, and so make it to the thickness of an ink, that you may conveniently write with it; then let it dry a little, but not too much, lest it should not take the leaf-gold or silver; nor too little, lest it drown them. Then lay the leaf-gold or silver upon a gilding cushion; take it up with a piece of cotton, on which you have breath'd, and cover with it the part you intended, pressing it down hard; and where the gum-water is, it will take. Then brush off with a bit of other cotton, what it has not taken; and when it is thoroughly dry, burnish it with a piece of polish'd ivory, and it will appear very bright.

*Another way.* Take shell-gold, which is made of the rugged edges or cuttings of leaf-gold; and when you are going to use it, put in a little fair water, and temper it up with a clean pencil, and lay it on either with pen or pencil, in what form you please, either by way of writing or gilding, and let it be thoroughly dry; rub it over with a dog's, calf's, or horse's foretooth, and it will be very shining and lustrous.

*Secret Writing.* Put powder of *alum* into water, and what you write the letters will not appear; but put the paper into water, and then you may read it, or juice of spurge will do.

### *To Write letters that cannot be discovered.*

Take a sheet of white paper, double in the middle of it, then cut holes through both the half-sheets, cut the holes like the panes of a glass window, or any other fashion you please; then with a pin prick two little holes at each end, and cut your paper in two halves, and give one half to your friend, to whom you design to write, and keep the other half your self.

When you write, lay your cut paper on half a sheet of writing paper, and stick two pins through the two holes, that it stir not, then write your mind to your friend thro' these holes; then take off the paper with the holes, and write any thing, what you please, to fill up the vacancy. And when your friend receives the letter, let him lay his cut paper on it, putting the pins into the holes, and then what you wrote not to the purpose is covered, and he discovers your mind.

*Another way.* Write the letter with common ink on one side, then turn the paper, and write on the other side with milk what you would have secret, (with a clean pen) and let it dry; then when it is to be read, let the written side be held next the fire, and the milky letters will appear bluish on the other side, and may be perfectly read.

### *An exquisite method of invisible Writing.*

*The first Ink.* - Take a pennyworth of *litharge* of gold or sil-

ver

## Y E L

*ver* unprepared, pound it in a mortar, then infuse it in a vial half full of strong vinegar, shake them well together, and let them stand to settle, and being clear, write upon your paper with a new pen, and it will not appear at all.

*The second Ink.* Burn cork 'till it has done smoking, extinguish it in *aqua-vitæ*, or spirit of wine, dry it, and mix it with water, and a little *gum-Arabick*, to the consistence of thin paste; when you would write with it, make it thinner with common water, and write upon what is written with the forementioned ink.

*The third Ink.* Take *yellow orpiment* and *quick-lime*, of each an ounce, pound them in a mortar, and put them in four ounces of common water, and stir them well; this water will take away the second ink, and make what was written with the first appear.

Writing *not to be read but in water.*

Write with the juice of *spurge* or *alum-water*, dry it, and it will not be legible without wetting.

*To make black Writing vanish, and appear again.*

Dissolve burnt *tartar* in common water, and filtrate it; strike it over the writing, and it will disappear.

*To make the Writing appear again.*

Dissolve an ounce of white *vitriol* in a pint of water, filtrate it, strike the paper over with it, and the writing will presently appear as before.

*To write with Ink, which will vanish in five days.*

Infuse an ounce of *sal-armoniac* four or five days in strong water: make of it ink with a piece of *touchstone* beaten fine, and what you write with it will be gone in five days.

*To write with an Ink that shall vanish in twenty-four hours.*

Boil galls in strong water, put to it some *vitriol*, a little *sal-armoniac*, and a little *gum-Arabick*, and it is done.

THOMAS VAN WYKE, commonly call'd the old, was father of *John van Wyke*, and a famous painter, born at *Haerlem*, he painted landskips, especially havens and sea-ports, shipping and small figures; but his particular excellency lay in representing chymists in their laboratories, and things of the like nature. He followed the manner of *Peter de Laer*. He left *England* after he had lived a considerable time abroad, and died here about fifty years ago.

## Y.

**Y**ELLOW is a bright colour, reflecting the most light of any after white.

There are divers *yellow* substances that become white upon wetting, and drying them again several times at the sun; as wax, linen cloth, &c. The

## Y E L

The same bodies, if they be already white, and continue a long time in the air, without being wetted, turn *yellow*.

Paper and ivory, apply'd near the fire, become successively *yellow*, *red*, and *black*. Silk when turn'd *yellow* is whitened with the fumes of sulphur.

*Yellow* in *Dying* is one of the five simple and mother colours. For the finest *yellows* they first boil the cloth or stuff in *alum* and *pot-ashes*, and give the colour with *goud*.

Likewise *turmeric* gives a good *yellow*, tho' not the best. There is also an *Indian* wood that gives a *yellow* colour, bordering on gold. There is another sort of *yellow* made of savoury, but this is inferior to them all.

With *yellow*, red of *madder*, and that of goat's-hair prepar'd with *madder*, are made the gold *yellow*; *Aurora*, thought-colour, *Macarate*, *Isabella*, *chamoise* colour, which are all casts or shades of *yellow*.

*Painters* or *Enamellers* make their *yellow* of *masticote*, which is *ceruss* raised by the fire, or with *oker*.

*Limners* and *colourers* make it with *saffron*, *French* berries, *orcanette*, &c.

**YELLOW.** There are some objects, which have the appearance of gold, shining through the colours of green, red, or blue; such as some sort of flies and beetles, and the *Cantharides*.

This golden transparency is very well imitated by laying on the drawing some leaf-gold on the shaded part, a little giving in to the light side of the print.

The way of laying on the leaf-gold, is to wash the part, where the gold is to be, with strong gum-water, and when it is grown something dryish, to lay on the gold as smooth and even as possible, pressing it down close with cotton. But in doing this, care must be taken, that in laying on the gum-water, you do not exceed the limits you would have the gold appear to shine.

In this case the gold is to shine only through the transparent colour, which is to be laid upon it.

You must observe this, that the leaf-gold will not regularly receive water-colours, and for that reason it must be stroak'd over with a little thin liquor of ox-gall in a painting-brush of camel's hair, and then it will receive any colour that we have a mind to paint upon it, and will hold it.

So you may have golden reds, golden greens, and golden blues, golden yellows, golden purples, and what you please.

The *greens* may be first the *verdigrease* green, or the sap-green; the *reds* may be *lake* or *carmine*; the *purples*, *lake* and fine *indigo*, or *carmine* and *indigo*; and for the blues, *indigo* on the dark side, and on the light side a little stroke of *ultramarine* blue, just to shine into the light, and it will have an admirable effect.

## Y E L

**N. B.** There is to be found upon *rose-trees* in *June* and *July*, a kind of beetle of a golden green colour, which will serve for a direction in this kind of painting.

But if gold itself be us'd, it will be best to polish it, which you may do after the following manner:

There are to be seen in many manuscripts fine golden letters, which rise above the surface of the *vellum* or paper, the composition that raises them above the paper, is said to be made of *vermilion* and the white of an egg, whisk'd or beaten up to that consistence, as is call'd an oil, work'd together like a kind of paste, and with a stamp fix'd to the vellum or paper, with *gum Arabick*; on this figure of a letter wash some strong gum-water with a camel's hair pencil, taking care that the gum does not reach more than the out-lines; then lay on the leaf-gold close with some cotton, and as soon as it is dry, rub it with some dry cotton, and then polish it with a dog's tooth; this will make it appear, as if it was really cast in gold.

There is besides this another way of working in *gold*, and that is perform'd by shell-gold; but then it must be pure gold, and not that which is brought from *Germany*, which will turn green in a few day's time.

Before you use this gold, cover the shady parts with *vermilion*; and after your gold has been well rectified with spirits of wine, lay it on with gum-water, which will readily mix with it, and when it is dry, polish it with a dog's tooth.

In laying on the gold it may be best to leave the lights vacant of it, and so it will make a much brighter appearance than if the object was covered all over.

But if one was to cover by accident the whole piece with gold, there is no better way to set it off, than by tracing over the shady parts with gall-stone; or, which is much preferable, the yellow, the composition of which you will find below, made of *French* berries, I mean that which is the deepest in colour; a little *minium* brightens it very much. How the *minium* is to be rectified you may see among the REDS, and polish the gold before you use the *minium* on it.

After gold I shall treat of YELLOWS, as they fall gradually in their course of strength.

The first YELLOW is a kind of *straw-colour*, and is made of flower of brimstone, which of it self is fine enough to mix with gum-water.

A common way of illuminating prints, is by giving the tincture of *gamboge* for a yellow, and this may be of two or three sorts, either fainter or stronger; the last to be a shade to the first, and the last to be shaded with the preparation of *French*-berries.

The

## Y E L

The great Mr. *Boyle*, in some papers he left behind him, say<sup>s</sup> that if the roots of *barberries* are cut, and put into a *lixivium* made strong with water and pearl-ashes, there will be a fine yellow colour produc'd from it; which having been try'd, succeeds-very well.

He likewise proposes another way for making a transparent yellow, which is, by washing the root of *mulberry*-tree very clean from the earth, in common water, and boiling it in a strong *lixivium* of pearl-ashes and water; and it will afford a yellowish juice, from which may be extracted a tincture, much deeper than the former.

*Yellow oker* will make another good pale *yellow*; but it is a colour, rather of too much body for illuminating of prints; but yet being well ground with gum-water, it is of use after it has been well wash'd.

The plant *celandine* will afford another good *yellow*, by infusing it in water, and pressing it gently, and then boiling the liquor with a little alum; this *yellow* will incline a little to green.

But a *yellow*, which some prefer to the rest, and may be us'd in several capacities of lights, is one made of *French* berries, prepar'd as follows:

Boil two ounces of *French* berries in a quart of *lixivium* made of pearl-ashes and water, 'till the liquor will give a fine tinge of *yellow* to a bit of paper dipp'd into it, then pour it off from the berries, let the liquor cool, and then put it into a bottle for use.

Then again put a pint of the same *lixivium* to the berries, and boil them 'till the liquor is as deep-coloured as gall-stone; and this will be fit for the shade of any sort of *yellows* you can use.

This may be boil'd 'till it produces a brown colour; and will, with a little ox-gall, serve to shade any leaf-gold, that has been laid on paper, and is much preferable to gall-stone in imitating any gold colour. It answers well upon a tincture of *gambooge*, or any of the former *yellows*.

Next to this may be reckon'd the tincture of saffron, in common water only, which affords a bright reddish *yellow*, such as one would have (to cover the shadowed parts of a print) for an orange-colour; and when saffron is infus'd in rectified spirits of wine, there is nothing higher; but then, except the colour be loaded with *gum Arabick*, it will fly.

As for a deep *yellow* with a body, *Dutch* pink comes the nearest of any to the before-mention'd strong *yellow* made of *French* berries in point of colour; and of a lighter *yellow* is the *English* pink, which is still made of *French* berries, and in a body likewise.

Also a good *yellow* colour, for illuminating of prints, may be

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extracted from the *French roots* of ginger, and it makes a fine green with transparent *verdigrease*.

N. B. The *English* and *Dutch yellow pinks* are made with *French berries* ground to a fine powder, and boiled.

*Yellow Silk Dyes, and first Blossom-Yellow.*

Dye it after the same manner as gold colour, then heighten it with orange-dying fuds, after which rinse and dry it.

*To dye Silk yellow.*

Procure a clean kettle, put in a sufficient quantity of water, and for every pound of silk put in two pound of *yellow wood*, and six ounces of galls; let the *yellow wood* boil an hour before you put in the galls, and afterwards boil them together for half an hour, and then put in the silk, having first alumed and rinsed it, stirring the dye; then wring it out of the kettle with a little pot-ashes; and after it has been wrung out, put it into the dye again, and leave it there to soak for a whole night, and in the morning, rinse, beat, and dry it.

*To dye Stuffs a brimstone Yellow.*

Boil the stuff in three pound of *alum*, one pound of *tartar*, and three ounces of *salt* for an hour; throw away the water, then make a liquor of *yellow-brown*, laying it in the same order as straw in brew-houses; then add *lye-ashes*, and draw the stuff through the dye three or four times very quick; to do which dexterously, it will require the assistance of three or four men.

*Another.* Let the stuffs be alumed as usual for half an hour, and then for every pound of ware take half a pound of *yellow dye-weed*, and a handful of wood-ashes; boil them a quarter of an hour, then throw the rinsed ware into the liquor, work it about, 'till you perceive it to be well dyed, then cool it and rinse it out.

*Of dying Yellows and Orange-Tawney.*

1. *To dye a Yellow colour.*

Take water a sufficient quantity, *alum* one pound, enter your yarn cloth, &c. boil two hours, and take it out, and wash it clean. Take fresh fair water a sufficient quantity, *fustick* two pounds, let it boil, and enter your cloth, boil an hour, and take it out; this will dye twenty pounds weight.

2. *To dye an Orange-Tawney.*

Let your wool, yarn, flannel, stuff, or cloth, &c. be first dyed into a red colour; and then being red, let it be dyed into a yellow colour.

2. *Another way to dye an Orange-Tawney.*

Take stale wheat-bran liquor a sufficient quantity, *alum* three pound, enter twenty yards of broad cloth, handle and boil three hours; take it out, cool and wash it well. Take fair water, and good linge, or hedder, which grows in morasses, moors, or swamps,

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wamps, boil it a good while, and take forth the hedder, and cool with a little *yellow*; take it up and air it. Take fresh bran-liquor a sufficient quantity, *madder* two pounds, enter your cloth, and boil it with a quick fire, then take it out, cool it, and wash it well. Observe you may make it a good *yellow* with *fustick*, and then afterwards perfect it with *madder*.

### 4. To make another Yellow colour.

Take *buckthorn* berries gathered about the beginning of *August*, bruise them, and add a little *alum* in fine powder, mix and keep all in a brass vessel.

### 5. Another good Yellow.

Make a strong tincture of *saffron* in white-wine vinegar, and add thereto a sufficient quantity of *alum* in powder.

### 6. To make another excellent Yellow dye.

Take pure clear wheat-bran liquor thirty quarts, *alum* three pounds, enter your stuff or cloth, boil for two hours; after which take wold, weld, or dyer's weed two pounds, and boil it 'till you see the colour good.

### 7. Another good Yellow dye or colour.

Take running water and malt-wort, of each a like quantity; in which dissolve a sufficient quantity of *alum* by boiling: into this liquor put whatsoever you would have dyed *yellow*, and let it boil a good while, then take it out, and put it into a strong decoction of wold, weld, or dyer's weed, made with chalk-water, and laying weight upon it, let it boil one hour or two.

### 8. To dye an Orange-Tawney colour.

Make a weak *lixivium* of pot-ashes, or buck-ashes, as women wash their clothes withal, put into it wood-foot a sufficient quantity, and black cork; boil a while, then put in the matter you would dye (being first dyed *yellow*) and let it boil a little, casting in while it boils a handful of bay-salt.

### 9. To dye Barley-Straw, &c. of a Yellow.

Take a *lixivium* of pot-ashes, a sufficient quantity of yellow bark, of the *barberry*-tree a pound, make a decoction, and in this boil your straw.

### 10. To dye a Yellow colour.

Take *alum*-water a sufficient quantity, inner bark of a plumb-tree one pound, or as much *sumach*; make a decoction, and boil what you think fit in it, and it will be of a fair *yellow*.

### 11. To make a Yellow.

Take *orpiment* a sufficient quantity, grind it with water, then put it in little parcels upon paper to dry, and then you may use it as a pigment.

### 12. To make an Orange colour.

Take *vermilion*, grind it with a little *saffron*, and then mix it with a little *red-lead*.



## Z A F

*To dye Thread Yellow.*

Boil eight pound of *broom*, one pound of *Spanish yellow*, one pound of crab-tree rind, and one pound of corn marigold in a kettle, with three quarts of sharp lye, and work the thread in the liquor three times successively, not suffering it to dry between whiles, and it will be of a beautiful and lasting colour.

Z.

**Z.** A. stands for *Zazingeri*, or M. Z. for *Martin Zinkius*.

**M<sup>3</sup>** MATTHEW ZAGEL engrav'd several ornaments and grotesque pieces *per lo traverso*, or with cross strokes; he liv'd in the year 1500, and us'd this mark.

**Z** THEODORE ZAGHEL, his mark in a woman with her back towards you.

DOMENICO ZAMPIERI, call'd DOMINICHINO, scholar of *Denis Calvert* and the *Carraches*, born in 1581, liv'd at *Bologna, Rome, Naples*, excell'd in history, died in the year 1641, aged 66 years.

ZAFFER; this is call'd in *Latin Zaffera*, which *Merret* tells us comes from *Germany*; it is taken by some for a preparation of an earth for tinging glass *blue*; others take it for a stone, and he himself for a secret, asserting that there are but few authors, who have made any mention of it, and no one that has told us what it is.

I shall here give you the sentiments of some authors, who speak of it, when the reader will see what authors are determin'd about it.

*Cardan* in his fifth book *de subtilitate* calls it a stone, his words are these; "there is another stone which colours glass blue, some call it *zaffer*."

*Julius Scaliger*, who has compos'd a treatise of glass, does not at all reprehend *Cardan* for calling it a stone. *Cæsalpinus* after *Cardan*, l. 2. c. 55. reckons it also amongst stones, thus he speaks of it: "there is another stone colouring glass blue, and if you add too much, it makes it black, they call it *zaffer*; it inclines from an ash to a purple colour: it is heavy and brittle, and melts not of itself, but with glass runs like water."

*Ferant. Imperatus*, l. 28. c. 8. says, that this stone is very like the load-stone and *manganese*; but the learned *Agricola* without doubt knew it not, for he makes no mention of it.

*Anselmus Boetius* of *Boot*, physician to the emperor *Rodolphus II.* who has given us a large history of all sorts of stones and jewels, has allotted no place to *zaffer* amongst those he mentions, altho' it be brought from *Germany*, according to the sentiment of *Merret*, who says *zaffer* is a compound, asserting it is

## Z I N

is neither earth nor stone, not mixing at all with water, nor breaking, as is easy to remark, by squeezing it between the fingers.

That certainly, if it were either of these two, it would have been discovered by the diligence of those that have treated of it, being of so great use to those who make glass, which makes that author say, that *zaffer* is a secret, whereof the composition was found out by a *German*; that if he might give his conjecture of it, he should think it made of copper and sand, and some proportion of *lapis calaminaris*; that the blue colour it gives, seems to be owing to the brass, as that of *manganese* to iron. That only minerals can tinge glass, and that no materials can be found for that purpose, except metalline ones.

Wherefore he concludes, that the matter which composes *zaffer*, can only be either copper or brass.

*The method of preparing Zaffer for tinging Glass.*

The only preparation of *zaffer*, according to *Merret*, is to grind it into a very small powder, and scarce it through a fine sieve.

But *Neri* gives us one, which makes the glass much finer, which is this:

Take *zaffer*, in the biggest pieces you can get, put it into earthen pans, and let it stand one day in the furnace, then put it into an iron ladle to be heated red-hot in the furnace; take it thence, and sprinkle it with strong vinegar; being cool'd, grind it fine on a marble-stone, after which wash it with warm water in earthen pans, letting the *zaffer* settle to the bottom, and decanting off the water gently: this will separate the foulness and impurity from the *zaffer*, which will remain at the bottom pure and clean; which must be dry'd and ground again, and then kept in vessels close stopp'd for use.

This will tinge glass much better than the first.

*Pomet*, in his general history of drugs, makes mention of a mineral brought from *Surat* in the *East-Indies*, of a bluish colour, or like a partridge's eye, which he calls *zafer*, *safre*, or *sapher*, to which he ascribes the same virtue of tinging glass blue.

**ZEPHYRUS**, the west wind, is represented [in *Painting*, &c.] by a youth with a merry countenance, holding in one hand a swan with wings display'd, as tho' about to sing, on his head a garland of all sorts of flowers.

*It is call'd Zephyrus of ζώνη φέρων, i. e. bringing life, because it cherisheth and quickneth.*

**ZINK** is a kind of mineral or semi-metal, which some confound with *bismuth*, and others with *spelter*.

*Zink* is a kind of mineral lead, very hard, white and brilliant, and which tho' not ductile enough to denominate it a metal, yet will stretch a little under the hammer.

## Z U C

It is found plentifully in the mines of *Gosselaer* in *Saxony*; that which is commonly sold, is in large thick square cakes, which would make one suspect it were melted, when taken out of the mine, and cast in moulds of that form.

*Zink* is us'd in purging and purifying tin, much after the same manner, as lead is in purifying *gold*, *silver*, and *copper*.

Founders use it with *turmerick* to tinge *copper*, to which it gives a fine gold-colour.

Mr. *Homberg* conjectures, with a great deal of probability, that *zink* is no other than a natural mixture of two real metals, viz. tin and iron.

FRANCIS VAN-ZOON was an eminent *Dutch* painter of fruits, flowers, and plants; he was bred up at *Antwerp* under his father old *Van-Zoon* a painter in the same way. He married a niece of Serjeant *Streater's*, she brought him into the business of several persons of quality, which first occasioned his being known. He painted loose and free, yet kept close to nature, and all his pictures seem drawn by the life. He began some large pieces, wherein he propos'd to draw all the physical plants in the apothecaries garden at *Chelsea*; but that work proving tedious, he desisted from it, having greater encouragement other ways. He died here in *London* about thirty years ago, and lies buried in *St. James's*.

ZOUST, or SOEST, was an eminent *Dutch* face-painter, who came into *England* about the year 1680, and found here encouragement suitable to his merit. The portraits he drew after men are admirable, having in them a just and bold draught, and good colouring; but he did not always execute with a due regard to grace, especially in women's faces, which is an habit can only be acquired by drawing after the most perfect beauties.

Mr. *Zouft* painted several persons of very great quality; his colouring was very warm, and he was a great imitator of nature, but for the most part unfortunate in his choice. He died in *London* about sixty years ago.

FEDERICO ZUCCHERO born in 1543, scholar to his brother *Taddco Zuccherro*, liv'd in *Rome*, *France*, *Spain*, *England*, excell'd in history, portraits, sculpture, and architecture, died in the year 1609, aged 66 years.

TADDE ZUCCHERO, born in the year 1529, scholar to his father *Ottaviano Gio. Petro Calabro*, and studied *Rafaelle*, liv'd at *Rome*, *Tivoli*, *Florence*, *Caprarolo*, *Venice*, excell'd in history, died in the year 1566, aged 37 years.

# F I R

## ARTICLES added by way of SUPPLEMENT.

*To make BRONZE, or powder of the colour of gold.*

**T**AKE of *gum-elemi* 12 drams, melt it; of crude *mercury*, one ounce, *sal-armoniac*, two ounces; put all into a glass-vial, with bole and whites of eggs: melt all, and when melted, add orpiment at discretion, with some filings of brass; being well mingled together, lay it with a pencil on that which you would *bronze*.

*How to BRONZE.*

Having whited and made your figure smooth, grind crystal and touchstone with water, temper it with glue, and lay it on your work; instead of burnishing, rub the metal of which colour you would have, well, and it will be finished.

*To bronze with copper.*

Take pin-duft, grind it well, and wash it till the water be quite clear, mix it with glue, as you do *tin-glass*; lay it on the white ground with a pencil, and burnish; the same may be done with *antimony*.

*To make an egg move about.*

You must first empty it through a little hole made in it; then put ever so little vitriol into it, stop it up presently, and you will see the effect.

The same may be done by putting a leech into it, having some water spilt in some part of the room.

*To make a MAN's FACE appear hideous.*

Take common salt, and fine chalk in powder, with which, powder very well some hemp or flax, dipping them in good *aqua vitae*, then set them on fire, first putting out all other lights, and you will see wonderful things.

*A FIRE that will burn under WATER.*

Take three ounces of powder, *salt-petre* one ounce, *sulphur* three ounces, pound, sift, and mix them together; fill your moulds, fire them and throw them into water.

*How to hold FIRE in one's hand without burning.*

Put some vitriol into strong vinegar, with an equal quantity of juice of *plantain*, and anoint your hands.

*To touch FIRE without being burnt.*

Take the juice of *marsh-mallows*, seeds of *psillium* in powder, mix all together with the whites of eggs, and juice of radishes; anoint

## N A K

anoint your hands, and let them dry, then anoint them again, and you may touch fire without danger. To make it burn, there must be powder of *brimstone*.

*Indian-RED*, or *Persian-earth*, is what we improperly call *English-red*; this is a very dear drug, especially such as is in little pieces, moderately hard and of a high colour, used by shoe-makers, who steep it in the white of an egg, to colour shoe-heels with.

### *An invisible INK. The first.*

Take a penny-worth of litharge of gold or silver, unprepar'd; beat it, then infuse it in a vial, half full of strong vinegar, shake them well together, and set it by to settle; and when it is clear, write upon paper with a new pen, and it will not appear at all.

The second *ink*. Burn cork till it has done smoaking, quench it in *aqua-vitæ*, or spirit of wine, and dry it, and mix it with water and a little *gum-Arabick*, to the consistence of thin paste; when you would write with it, make it thinner than common water, and write upon what is written with the before mentioned ink.

The third *ink*. Take yellow *orpiment* and quick-lime, of each an ounce; beat them and put them into four ounces of common water, and this water will take away the second ink, and make what was written with the first, appear.

### *To mould off NAKED persons with plaister, in what form you please.*

If the person whom you chuse to take a mould from, be hairy on the thighs or breast, shave off the hair; but let that under the arm-holes, be well greas'd with hog's grease, or cut it: let not the body of the person be constrain'd to any unnatural posture; and grease him well over.

Having plac'd him in the midst of a table or large board, laid on the ground and greas'd, then make a counter-mould of brick or clay round him, which you must plaister on the inside, so that it be about three fingers breadth from the figure.

If the legs are a little open, put a little clay before you make the counter-mould, or a thin board greas'd, between the legs, so that it neither touch them nor the thighs; then take other little pieces of thin board, in form of a knife, or thin wedge, sharp on one side, but thicker than the other; grease them, then view the place where you intend the mould shall separate, be it in two, three, or four pieces; stick these pieces of board upon the clay, on the inside the counter-mould, the sharp edge to the side of the person that is to be moulded; but if you place these boards from the soles of the feet to the calf of the leg, gartering-place, knees

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knees, or higher ; do it according as the leg, thigh, or other part of the body is situated, more or less inward or outward. The figure being cast, and these pieces taken away, you have the place where to open the mould.

Having raised the counter-mould as high as the shoulders, make a little trough, about 2 or 3 feet long, which must rest on the top of your mould, one end joining to the neck of your figure, at the other end place a wooden tunnel, as big as a large pail ; then take 6 or 7 large staves, or ribs of a large cask or barrel, bind them fast about with a cord, for fear it should burst ; then take plaister well burnt, and throw it into a large tub of water, or into several large brass pails or kettles, with which (being neither too thick nor too thin) fill your counter-mould through the tunnel, that it may run down the trough ; pour it in with all the expedition possible, for which you must have several hands to assist you. After it has been fill'd, the plaister will be set in a little time ; which being done, pull down the counter-mould : then with a large knife, or such like instrument, dress the outside of the mould, while the plaister continues easy to be cut ; then take out the thin pieces of wood, and have other pieces of about a foot and half long, more or less, in form of a wedge, and sharp as a knife, about a finger in thickness on the back, and about half a foot broad ; place these in the clefts made by the small boards, and open the mould, which should be done in as few pieces as can be.

Thus will you have an upright figure in two pieces, except the arms.

But in figures lying all along, the mould must be in more pieces ; but if the figure hath one, or both arms extended, draw a circle like a bracelet with red ink, round about the arm or arms, about half a foot from the shoulder, which mark being imprinted in the mould, the figure taken off will also have the same, which will easily direct where to cut it, and fit the length of the arm, to the body of the figure.

If you desire a copy of the figure, dress the mould, tie the pieces strongly together, and cast plaister into it.

But if you would cast a figure of bronze, or brass, separate the mould where you put the small pieces of wood ; or else with an iron wire, saw the mould as near the hollow as possibly you can, so that putting a bigger wedge into the cleft, you may open your mould. Being divided so as that you may cast your wax figure, make thick pieces of earth, dry it, grease it, and make a kernel, or inward mould ; put in the iron points or broches to support it ; take out the thickness of earth, pour in the wax, then melt it out, and bake the mould.

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In like manner you may take off all sorts of figures and postures according to the life; be sure to cast all your plaister at the same instant; for many and slow runnings make faulty moulds: Also the person being up to the neck in plaister, the coldness of the water will so oppress his stomach, that he will be apt to shrink, or lift up his shoulders, and so deform the mould.

But to prevent this, let the water be made luke-warm. If you mix a third of fine brick with the plaister, and some plume alum, you may cast bras in it, only making a thickness of earth to make the kernel; but before you bake it, give a laying or two of sal-armoniack water in all the hollow places of the mould, tying it with strong wire, or iron hoops, and putting in the broches.

Thus you may cast very fine figures either of *lead* or *tin*. The chief thing is to find out well-shap'd persons, and hard labourers, who have always their muscles more strong and better shap'd than such as live a more soft and easy life, who often have their bodies formed by their cloths; nor those whose toes grow over one another; the person must be set right, that the posture may not seem awkward, especially in upright figures.

*How to mould the Face without much trouble to a person.*

Take a little brush or pencil, lay some warm paste upon the hairs of the eye-brows, the forehead, all along the roots of the hair and upon the beard; lay the person on his back, and with a napkin rolled up, compass the face about to hinder the plaister from falling into the neck, or upon the hair.

The plaister being well tempered, neither too thick nor too thin, and that the business may be done the sooner, let there be two to lay on the plaister with their hands, beginning at the forehead, and so all along the face, except at the nostrils, which must not be stopped; but your mould must be charged with as much thickness as it will bear, not stopping the nose. If the plaister be good, it will set presently, then take it gently off, and you have the mould of the face to the life.

*To cast hands to the life.*

Place the hands in what posture you think fit, grease them, and proceed as before; putting little boards greas'd, to divide the several pieces; after the same manner may feet and legs, in all postures, be done.

You should always put a cloth under the mould when you open it, that if any small pieces happen to break off, they may be gathered and joined with strong glue.

*To mould off the FACE of a person in Wax.*

Take a pound of new *wax*, a third of *colophony*, melt them at a slow fire, let them cool so long as that you may endure some of it on your hand without burning it; then having oil'd the face all over with sallad-oil, cover the hair of the eye-lids and eye-brows



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eye-brows with paste, as also the beard; then with a brush nimbly cover the face, about the thickness of half a crown, being careful not to stop the nostrils, and that the person squeeze not his eyes together, because that will render the face deformed.

Thus having the face of wax, take it gently off; then strengthen it with clay on the back side, that in pouring in the plaister, it may not give way.

After this manner you may cast all sorts of faces; laughing, weeping, grimaces, or wry-faces; also hands, feet, fruit, fish, or any thing else, dividing the mould into two pieces with a warm knife; then join them, and fortify them with potters earth.

There is no way of casting, neater than this: the eyes being open'd afterwards with a small gouge, and these may be coloured to the life, and is a way of casting very fit for painters, carvers, and engravers to cast patterns.

### *Colours for METALS, and precious stones.*

For *Iron*, use *lamp-black* and *white-lead*, and if you would represent it as rusty, mix sea-coal black with a little white.

2. For *silver* use *charcoal-black* and *white-lead*; and where you would have it darkest, put in more *charcoal*; work the *silver* somewhat rustyish, and give it a sudden gloss with *white-lead* only.

3. For *gold* use *lake*, *umber*, *red-lead*, *masticote*; lay the ground with *red-lead*, and a little dry *pink*, and where you would have it darkest, shadow it most with *umber*, and where lightest, with *masticote*.

*Take notice that in grinding red-lead for gold-size, put in a little verdigrease to make it dry the sooner.*

4. For *pearls*, mix charcoal-black with white-lead, till it be a perfect russet; then make the *pearl* with it, and give it a speck of white-lead only, to make it shine.

*Where take notice, that ceruse temper'd with oil of white poppies, is excellent for heightening up pearls.*

5. For *precious stones*: For *rubies*, &c. lay their counterfeit grounds with transparent colours; and *lake*, *verdigrease*, and *verditer*, will give them a shining colour.

### *A waggish way to make PEAS jump out of the pot.*

Put a sprig or two of the herb clary into a pot, in which peas are boiling, so that the water be not very low, nor the pot too close covered, and it will succeed according to your desire.

### *To hinder a POT, and meat from boiling.*

Put nettle-seeds into it, and no fire will make it boil.

### *To make boiled meat BLEED.*

Dry and powder the blood of an hare, and strew it upon boil'd meat, and it will seem as if it bled.

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### *To make a* PERPETUAL MOTION.

Cast some very small filings of iron into *aqua-fortis*, and leave them there till the water has taken the quantity of *iron* that is requisite, which will be in about 6 or 7 hours; then take off the water and put it in a vial an inch wide, with a large mouth, and put in a stone of *lapis calaminaris*; stop the bottle well, and keep it very close.

*To discover gold under a black colour, with an ivory Point, a great secret and very beautiful.*

Having first laid your gold on your work, and burnish'd it well, grind *lamp-black* with *linseed-oil*, or *nut-oil*, adding to it as much *umber*, and black to make it dry, and then as much *oil of spike*, as *linseed-oil*

Lay the *black* upon the gold, very smooth and even, and let it stand to dry about a day, more or less, according to the time; it is dry enough when it will not stick to your fingers. Then take a point of ivory or stag's-horn well sharpened, rub it upon a piece of glass to take off the roughness, that it may not scratch the gold or the white; then draw what you please with the point, discovering the gold.

If it appear bright and shining, and the black be not uneven and slovenly about the edges of the strokes you have made, then is your black in good temper; but if in discovering the gold, it seem tarnish'd, the *black* is not dry enough, therefore let it stand to be a little drier.

If the *black* be troublesome to get off, and cannot be easily done with an unsplit pen, then mix spike oil, till it come to work easily, clean and bright; and then you may easily draw the finest hair-strokes.

The *black* being thus ordered, cover the burnished gold all over, with a soft pencil; and then with the feather of a turkey-cock's tail, pass'd over the *black* as even and smooth as you can, free from all manner of dust or filth; being dry and having made your draught or figure as large as the work, follow the track of the lines with the point, and discover and lay open the gold.

If you would have the figures of birds, or little beasts, or any thing else, find out the strong lights of them, discover them by hatching with a pen or the point of a pen, if not too sharp; but if by the strokes approaching too near one another, you should happen to make a fault, you may mend it by laying on a little black, letting it dry.

If the way of making great lights be not so easy, or shadows are more easy and pleasing to you, you may discover the gold with a point of soft wood, that it may not scratch the gold, which you must discover or lay open to the bigness of your whole figure, shadowing the proper places, as the nose, eyes,  
hair.

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hair, &c. leaving it to dry ; then hatch it with a point according to the judgment of him who draws it.

That you may know when 'tis dry enough to hatch, always at the same time you cover your work, cover also a little waste piece for trials, to prevent the spoiling your work.

Your work being finished, let it stand three or four days to dry, and varnish it with drying varnish twice, if you find there is occasion.

When you lay on the black, do but one piece at a time, because otherwise, some of it being too dry, it will be difficult to discover the gold.

You must also be very curious in the first laying on the varnish, to spread it gently for fear of defacing the work.

*To do the same after a more easy manner.*

Having cover'd your work with burnish'd gold or silver, (which you please) mix and grind lamp-black and umber together very well with water, taking care not to put so much *umber* as to spoil the black ; then add some of the yolk of an egg, grinding it with it, and lay it on your work with a soft pencil or brush very smooth, and when it is dry (if you see occasion) give it a second laying of the same black, and with an ivory point very smooth, discover your work. If the black does not come easily off, there was too little of the yolk ; if the strokes be too broad and ragged, then there was too much yolk of egg.

This way of discovering the gold, is more shining than the other ; but be sure to be careful in varnishing you do not pull off the black, nor cause it to sully ; and to that end, be sure to work with a soft pencil, and smooth stroke.

You need not much fear, in laying on the varnish the second time, provided it be not too thick, and it be oil of *spike* varnish.

*To do the same another way.*

Having laid the black on the burnish'd gold, as before directed, mix equal parts of linseed-oil and oil of spike, which lay lightly on with a large pencil ; let the work stand to dry for 4 or 5 days more or less, according as you find the gold more or less easy to appear bright and shining.

By this way you may allow almost what time you will, always remembring to make a tryal, before you go to work.

For *blue* take *azure* ; for *red*, fine *lake* ; for *green*, *verdegrease* ; and so in all other colours, being mixt and ground with the yolk of an egg, as before directed.

*Addenda to PICTURES.* There are three several sorts of knowledge relating to *pictures*.

The *first* consists in discovering what is *good*, and what is *bad*, in the same picture.

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The *second* has respect to the *name* of the author.

The *third*, to know whether it be an *original* or a *copy*.

The first of these is certainly the most difficult to be acquired; it supposing a *penetration* and *fineness* of *wit*, with a good *acquaintance* with the principles of painting; and on the measure of these things, the knowledge of the art depends.

*Penetration* and *fineness* of *wit*, are necessary in making a judgment of the *invention*; of the *expression* of the *subject* in general, of the *passions* of the soul in particular; of *allegories*, and what depends on the *custom* or *manners*, and *poesy*.

The knowledge of principles assists a person in finding out *times* and *places*, the causes of the effects which we admire; whether they proceed from the correctness or elegance of the design, or whether the objects appear advantageously dispos'd, or the colouring, lights and shadows, be happily managed.

Those whose minds have not been cultivated by the knowledge of principles, or at least have some speculation of them, may indeed be sensible of the effects of a *fine picture*; but can never be able to give a reason for the judgment they make.

### *To know the author of a PICTURE.*

The knowledge of the names of authors, must be acquired by long practice, and the sight of a great many *pictures* of all the schools, and of the principal masters that compose them.

Of these schools there may be reckoned five, *viz.* the *Grecian*, *Roman*, the *Venetian*, the *Lombard*, the *German*, and the *French*.

After a person has by much application acquired a distinct idea of each of these schools, if he would discover to which of them a picture belongs, he must compare it with that, to which he thinks it bears the nearest affinity; and having found out the school, he must apply the picture to that painter, whose *manner* agrees most with that work; but perhaps it is the greatest part of the difficulty to attain a knowledge of this particular manner.

There are some curious persons, who form an idea of a master, by a sight of three or four of his pictures, and who after this think they have sufficient authority to determine as to his manner, without considering what care the painter took about them, and what age he was of, when he drew them.

We are not to judge of the merit of a painter, from some particular pictures of his, but from his works in general; for there is no painter but what has made some *bad*, as well as some *good*, according to his care, or the motion of his genius.

Nor is there any painter who has not had three manners, *viz.* his beginning, his progress, and his end.

The *first* he took from his *master*; the *second* he formed by his *gout*, in which are to be found his capacity and genius; and the third commonly degenerates into what is called *manner*: for a painter

painter who has a long time studied after nature, is willing without any more trouble, to make use only of the experience he has acquired.

When a curious person has well considered the different pictures of a master, and has form'd a perfect idea of his style, he may then make a judgment who is the master of a picture, without incurring the censure of rashness; tho' a critick who has a talent, and has studied and practised the art, may sometimes be deceived in the name of an author, yet he will at least never be deceived in the justness and solidity of his sentiments.

There are pictures which have been made by scholars, who have copied their masters very exactly, in their judgment and their manner.

Some painters have followed the *goût* of another country, and not their own; and some again have left one manner for another, and who have by this means made some pictures, which will puzzle the best judges to guess the name of their author.

But nevertheless, this inconvenience is not left without a remedy; for such as do not satisfy themselves in knowing a master's hand, have penetration enough to discover the character of his mind.

A skilful man may easily communicate the manner, in which he executes his design; but not the delicacy of his thoughts.

It is not sufficient to know the motion of the pencil of a picture, in order to find out the author, if he cannot penetrate into that of his mind too; and tho' it is a very great attainment to have a just idea of a painter's *goût* in his design, yet it is necessary also to enter into the character of his genius too, and the turn which he is capable of giving his conceptions.

*To know whether a PICTURE be an original or a copy.*

It is here supposed that a copy is made by a good master, which deserves a serious reflection, and will make a person doubt, at least for some time, whether it is an original or a copy.

There are of such copies three sorts.

The *first* done faithfully, but servilely.

The *second* done lightly, easily, but not faithfully.

The *third* is done both faithfully and easily.

The first, which is faithfully but servilely done, includes the *design*, the colouring, and the touches of the original; but the fear of passing beyond the bounds of this exactness, and of erring against faithfulness, has render'd the hand of the copyer stiff, and if it be never so little examin'd, shews it to be what it is.

The *second*, which is done lightly and easily, but not faithfully, is more likely to impose upon the spectator, because of the lightness and easiness of the pencil; but the unfaithfulness of the contours or out-lines, will undeceive good judges.

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As to the *third*, which are both faithful and easily perform'd by an artful and light hand, and above all, in the time of the original, will puzzle the greatest criticks, and often hazard their pronouncing against truth, tho it may be agreeable to verisimilitude:

As there are some things that favour the opinion of the piece's being an original; so again there are others that seem to destroy it; as *first*, the *repetition* of the same picture; *secondly*, its having been forgotten a long time; *thirdly*, the cheapness of it.

But tho' these considerations may have weight, yet they are sometimes very trivial, for want of a thorough examination.

That a picture is forgot, proceeds often from the hands into which it falls, the place where it is put, the persons which see it, or the little value that the owner has for painting.

The cheapness of it often proceeds from the necessity or ignorance of the feller.

The repetition of a picture, which is a more specious cause, is not always a substantial reason.

There is scarce a painter but has repeated some one of his works, either because he was pleased with it, or because he was desired to draw another like it; and sometimes the greatest artists have been deceived.

There are besides, a sort of pictures which are neither originals nor copies, which the *Italians* call *pastici* from *paste*; because as the several things that season a *paste* are reduced to one taste, so counterfeiters that compose a *pastici*, tend only to effect one truth.

A painter that would deceive in this way, ought to have in his mind the manner and principles of the master, of whom he would give an idea, whether he takes any part of a picture which that master has made, and puts it in his own work, or whether the invention is his own, and he imitates lightly, not only his touches, but even his *gout* of design and colouring.

It often happens that these painters, who intend to counterfeit the *manner* of another, aiming to imitate such as are more skilful than themselves, they make better pictures of this kind than if they were to do something of their own.

Among those who took delight in counterfeiting the *manner* of other painters, we may mention one *David Teniers*, who has deceived and ever will deceive the curious, who are not before acquainted with his dexterity in counterfeiting *Bassano* and *Paolo Veronese*. There are some of his *pastici* perform'd with so much cunning, that they have surpriz'd the eyes of the most judicious; but after they have examin'd them the nearer, they have soon distinguish'd the one's colouring and the other's pencil.

*Teniers* had a particular talent in imitating *Bassano*; but the light and easy pencil which he us'd in this artifice, is the very proof of his deceit: for his pencil, tho' easy and light, is not so lively



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lively nor so proper to characterize Objects, as that of *Bassano*, especially as to animals.

*Teniers* indeed understood the union of colours, but there was a certain grey predominant in his, and his colouring had not the vigour and sweetness of *Giacomo Bassano*. It is the same with all *Pastici*; and if we would not be deceiv'd by them, we must examine their *gout* of design, their colouring, and the character of their pencils, with the originals from whence they were taken.

PRINTS are of great use for *drawing, painting, &c.* they are one of the happiest productions of latter ages.

And they are in our age arriv'd to so high a degree of perfection, and good gravers have furnished us with so many on all sorts of subjects, that it may truly be said, they are the depositories of all that is fine and curious in the world.

The origin of *prints* was in the year 1460, and arose from one *Maso Finiguerra*, a goldsmith of *Florence*, who having grav'd a plate, and casting some of it in melted sulphur, he perceived what came out of the mould was mark'd with the same *prints* as his plate, by the *black* which the sulphur had taken from his graving: he try'd to do as much on silver plates with wet paper, by rolling it smoothly with a roller, which also succeeded.

This novelty tempted *Baccio Baldini*, a goldsmith of the same city, to try whether he could do the same; and his success encourag'd him to engrave several plates of the invention and design of *Sandro Boticello*; and upon this *Andrea Mantegna*, who was at that time at *Rome*, set about engraving some of his own pieces.

The knowledge of this invention getting into *Flanders*, *Martin* of *Antwerp*, then a famous painter, engrav'd abundance of plates of his own invention, and sent several prints into *Italy*, which were mark'd thus, M. C.

After *Martin* of *Antwerp*, *Albert Durer* began to appear, and gave the world an infinite number of fine *prints*, both in copper and wood, all which he sent to *Venice* to be sold.

*Marco Antonio*, who happen'd at that time to be there, was so charm'd with the beauty of these *prints*, that he copied thirty-six of them, which represented our Saviour's passion; and these copies were receiv'd at *Rome* with so much the more admiration, by how much the more they were finer than the originals.

At the same time *Ugo da Carpi*, an *Italian* painter of a mean capacity, but of a wit apt for invention, found out by means of several plates of wood, the way how to make *prints* resemble designs in *claro obscuro*; and some years after the invention of *etching* was discovered, which *Parmeggiano* soon made use of.



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These first *prints* drew the admiration of all that saw them for their novelty; and the skilful painters, who wrought for glory, were willing to use them, to spread their works all over the world.

*Raphael*, among others, employ'd the famous *Marco Antonio* to engrave several of his *pictures* and *designs*; and those admirable *prints* were so renown'd, that they carried the name of *Raphael* through all the countries of *Europe*.

A vast number of gravers have since *Marco Antonio* made themselves famous, in *Germany*, *Italy*, *France*, and the Low-Countries, and have publish'd, as well by graving as etching, an infinite number of *prints* on all sorts of subjects, as well histories, fables, emblems, devices, medals, animals, landskips, flowers, fruits, as in general all the visible productions of art and nature.

From these, painters may draw every thing that may assist them in the several parts of their art; as the *antique* pieces, and those of *Raphael* and *Caracci*, for the good *goût*, *correctness* of *design*, the *dignity* of *manner*, for the choice of the *airs* of the head, the *passions* of the mind, and the *attitudes*.

Those of *Correggio* for *grace* and *delicacy* of *expression*.

Those of *Titian*, *Bassano*, and the *Lombards*, for the character of *truth*, for the simple expressions of nature, and above all for the *goût* of *landskips*.

Those of *Reubens* for the grandeur and magnificence of his invention, and the artifice of *claro obscuro*.

In short those, tho' they may be defective in some particular part of them, may yet have something in them singular and extraordinary; for the painters may draw a considerable advantage from all the different manners of those that have gone before them.

For *sculptures*, *statues*, *basso-relievo's*, *medals*, and other *antique* works; those of *Raphael*, *Polydoro*, and the whole *Roman* school.

For *architects*, the books that concern their profession, and that are full of demonstrative figures of the invention of their authors, or copied from the antique.

For *engravers*, a collection of pieces of different manners, either engrav'd or etch'd.

This collection will also serve to shew them the progress of engraving from *Albert Durer* to the engravers of our own times, which will include the works of *Marco Antonio*, *Cornelius Cort*, the *Caracci*, *Sadelers*, *Pantius*, *Bolsvert*, *Goltzius*, *Muler*, *Vosterman*, *Vischer*, and a great many more, who had a particular character, and who by different ways all of them strove to imitate nature, when they did something of their own invention, or  
pictures

pictures of different manners, when they only aim'd at the faithfulness of imitation.

In comparing thus the works of all these masters, they may form a judgment, which of them understood best the management of their tools, of *light*, and the usefulness of *tones*, as it relates to the *claro obscuro*; which of them in their works reconcil'd delicacy and force best, and in their productions were most sensible and exact, that making a good use of these lights, they may have the laudable ambition to equal, if not to surpass these skilful masters.

For the curious in history and antiquity, every thing that has been engrav'd, belonging to sacred or profane history, the fable, the *antique basso-relievo*, the *Trajan* and *Antonine pillars*, the books of medals and stones engrav'd, and several *prints* that may be helps to them in the knowledge of those things they would know, or to keep those things that they do know already in their minds.

In short, for those that would form their *gout*, and have a reasonable tincture of the fine arts, nothing is more necessary than good *prints*.

Among all the good effects that may arise from the use of good *prints*, I shall only name six, by which we may easily make a judgment of the rest.

The *first* is to divert the imagination, in representing visible things to us by imitation.

The *second* is to instruct by a more forcible and ready manner than by speech.

The *third* is to shorten the time we employ in recollecting those things that have escap'd our memory, and to refresh it with a glance of the eye.

The *fourth* is to represent absent and distant things, as if they were before our eyes, which otherwise we could not see without troublesome voyages and great expence.

The *fifth* is to afford us by these means an easy way of comparing several things together, *prints* taking up so little room; and we may make use of so great a number, and so different.

The *sixth* is to give one a taste of good things, and a tincture of the *fine arts*, which no gentleman should be ignorant of.

If the ancients had had the same advantage of *prints* as we have; and if they had by the means of *prints* transmitted what they had done, that was fine and curious, to posterity; we should have distinctly known abundance of things, of which we have but confus'd ideas in history: we might then see the stately monuments of *Memphis* and *Babylon*, and the temple of *Jerusalem* built by *Solomon* with so much magnificence; we might make a judgment of the building of *Athens*, *Corinth*, and old *Rome*, with

more certainty than we can now by the poor remains that are left of them.

It is for want of the invention of *prints*, that the machines of *Archimedes* and the elder *Hiero* are lost; and the knowledge of *Dioscorides*, plants, and also of several animals, and a great many of the curious productions of nature, which the studies of the ancients discovered.

*To make PORCELAIN of Majorca.*

Take calcin'd egg-shells, *gum-Arabick* water, and glair of eggs, make all into a paste, shape it in a mould, dry it in the sun, and it will be very neat.

*Reduction of PERSPECTIVE Draughts out of small into great, and out of great into small.*

As designs are made with more ease in little than in great, it is but reasonable that they should be so made. This has put me upon giving a method of enlarging small designs on the canvass.

The method commonly us'd by painters, is to divide their little designs, and the canvass they intend the large ones to be on, into an equal number of little squares, and to transfer what is in the squares of the design into the correspondent squares of the canvass.

But that which follows is approv'd by some as easier and surer.

Provide a scale proportionate to the little design, and another proportionate to the canvass.

To make a design, the first thing to be determined is the scale, which is to fix the measures of all the parts of the work.

Thus in the little design A, the scale B C of five parts, which may be call'd feet, is the first thing to be made. From this scale are taken the horizon, the height and distance of the trees, the breadth of the walks, &c.

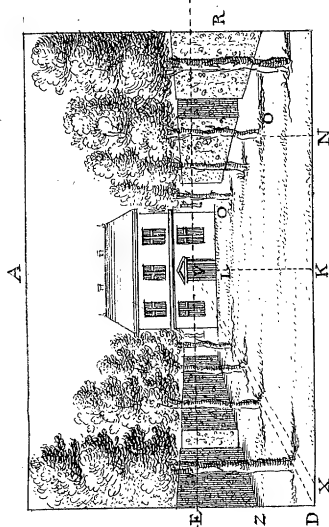
*To enlarge this design.* The method is this; consider whether or no the draught is to have its natural horizon, *i. e.* whether, when the bottom of the painting is on the ground, the horizontal line be the height of the eye, which is about five foot.

Then of the five divisions between B and C, make a scale of five foot F G; and thus having taken all the measures and proportions in the small one, you may transfer them to the great one, after the following manner:

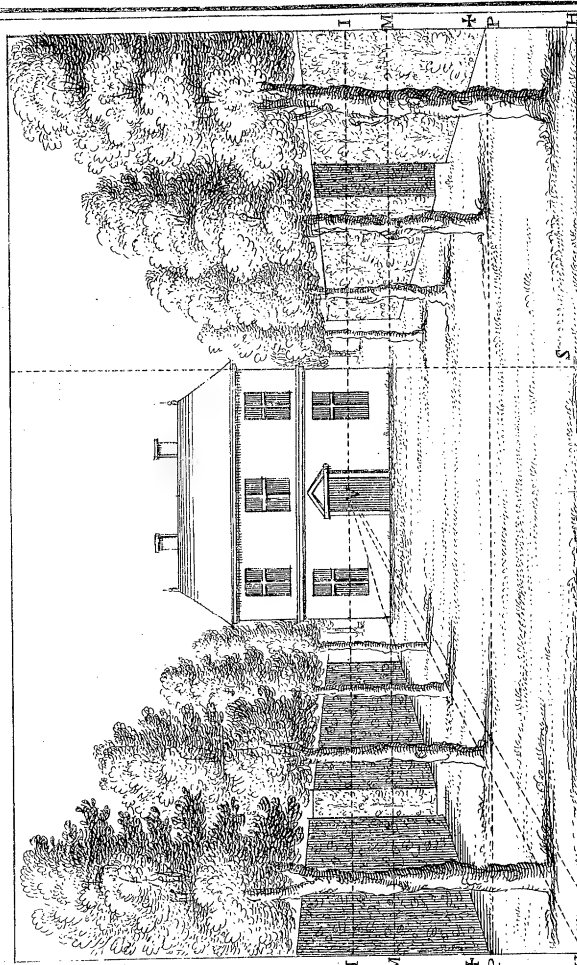
The two scales being thus fix'd, the first thing to be done is to take into your compasses the distance between the base line D, and the horizon E, and to apply the compasses thus opened to the little scale B C; noting what number of parts it includes, as here it does five.

Therefore take five divisions on the large scale F G in your compasses, and set them on each side the painting, or large design, beginning at the bottom of the cloth H H, and ending in I I.

From



C' 2 3 4 5 B



G' 2 3 4 5 F



## P E R

From the point I I, strike or score a line with a chalk'd or blacken'd packthread.

This line I I will mark the horizon in the large draught.

Then take the distance or depth K L of the little design, which gives the foot of the house, and set it on the little scale: note how many divisions it includes, and take the same number from the large scale, and set them on the edges of the canvass H M, H M, which you must strike with a packthread for the depth of the second tree.

Proceed to take in the little design the depth N O, and set it on the little scale; then take as many in the large one.

Again, N O includes two parts of the little scale; accordingly two parts are to be taken on the great one, and set off from H to P, which must be struck as before.

Do the same for all the parallels to the base line, as the other trees, windows, roofs, &c.

As to the perpendicular to the base line, the method is the same as for parallels, only they are to be struck or scor'd, not from the side, but from top to bottom.

Thus for the two corners of the house, the interval between them being taken in the compasses, must be set on the little scale, and being there found equivalent to seven divisions and an half, as many divisions must be taken from the great scale, by which you will have H S T S to be struck as before.

And the like must be repeated for all the other perpendiculars, as buildings, trees, pallisades, &c.

To find the visual rays, which are the lines proceeding to the point of sight V, fasten a packthread to this point V of the length of the painting, and with this strike or score all the rays very exactly.

Thus for the two rays D X, which give the breadth of the trees in the little design; take the distance D X, set it on the little scale B C, and take an equal number of divisions from off the great scale, this will give you H Y. To which Points H and Y lines are to be struck with the packthread from the point V.

For the ray of the pallisades take the distance D Z, and set it on the little scale; and take as many divisions from the large scale: by this means you will have H †, which are to be struck from the point V as before.

Every thing in a *perspective* ordinarily comes under one or other of these three sorts of lines, parallels, perpendiculars, and visual rays: and having shewn how to describe these with a good deal of ease on the canvass, there remains nothing difficult in the reducing small designs into great.

As to the reducing great into little, you have only to invert

## S A S

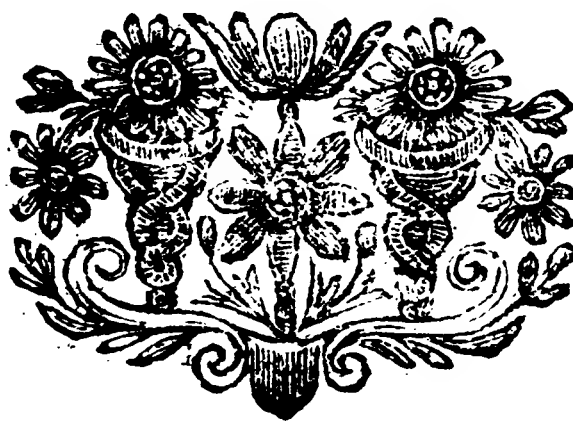
the process; that is, take measures first on the large scale, and diminish them proportionably on the small one.

Thus if the horizon of the large design were five divisions of the large scale; five divisions of the small were to be taken for the height of the horizon of the small design, and so of the rest.

*To render SASHES transparent by glue and varnish.*

Take glue made of glove-leather very clear, or that made of *vellum*, which is better, lay it on a cloth, and let it dry at leisure, then give it one laying more, and leave it again to dry; then take *virgin's-wax* and *turpentine* melted together, and lay that on, letting it dry; to a pound of *wax* allow a quarter of a pound of *turpentine*.

## F I N I S.





# Directions to the Binder for Placing the PRINTS in the *Polygraphic Dictionary*.

## V O L. I.

Plate			
1	Anamorphosis in Letter	B	between leaves 7 and 8
2	Admiration	C	bet. 1 — 2
3	Compassion, &c.	M	bet. M and N
4	Dialling	R	bet. 2d and 3d
5	Dialling	R	bet. R and S
6	Drapery	T	bet. 3d and 4th
7	Draw 6 Figures	V	bet. 6 and 7
8	Drawing mixt Forms	V	bet. 7 and 8
9	Draw mixt Forms	V	bet. 7 and 8
10	Drawing	X	bet. 4 and 5
11	Drawing in Persp.	X	bet. 2 and 3
12	Ears	X	bet. 6 and 7
13	Enamell. Furnace	A a	bet. 1 and 2
14	Engraving	A a	bet. 6 and 7
15	Eyes	D d	bet. 1 and 2
16	Faces	D d	bet. 2 and 3
17	Feet	D d	bet. 5 and 6
18	Feet	D d	bet. 5 and 6
19	Furnaces	F f	bet. 7 and 8
20	Garden in Perspect.	G g	bet. 1 and 2
21	Furnace for Stain. Glafs	I i	bet. 1 and 2
22	Group.	M m	bet. 1 and 2
23	Hands	M m	bet. 5 and 6
24	Hands	M m	bet. 5 and 6
25	Heads	M m	bet. 7 and 8
26	Heads	M m	bet. 7 and 8
27	Height	N n	bet. 1 and 2
28	Height	N n	bet. 1 and 2
29	Horror	N n	bet. 4 and 5
30	Houses	N n	bet. 5 and 6

# Directions to the Binder for Placing the PRINTS in the *Polygraphic Dictionary*.

## V O L. II.

### Plate

1	Japan Fig. in <i>Letter</i>	B	between B and C
2	Japan Fig.	C	between 4 and 5
3	Instruments for Glafs	D	bet. 3 and 4
4	Landskips	E	bet. E and F
5	Laughter	F	bet. 2 and 3
6	Legs	F	bet. F and G
7	Drawing Machine	L	bet. L and M
8	Furnace for Pearl	P	bet. 6 and 7
9	Perspective	Q	bet. 3 and 4
10	Perspective	Q	bet. 4 and 5
11	Perspective	Q	bet. 5 and 6
12	Perspective	Q	bet. 5 and 6
13	Perspective	Q	bet. 5 and 6
14	Perspective	Q	bet. 5 and 6.
15	Perspective	Q	bet. 7 and 8
16	Scorn, &c.	X	bet. 4 and 5
17	Shadow of the Sun	Y	bet. 2 and 3
18	Shadow by Torch-light	Y	bet. 3 and 4
19	Double Shadow	Y	bet. 3 and 4
20	A Street in Perspect.	B b	bet. 3 and 4
21	Tranquillity	D d	bet. 5 and 6
22	Trunks of Bodies	betw. D d	and E e
23	Walks	G g	bet. 7 and 8
24	Reduction of Figures	L l	bet. 3 and 4

N. B. Our first design being to have engraven the marks or characters of the most noted *Engravers*, &c. on a Copper-Plate; but after the working off a few of the first Sheets, thinking it better to print them with their particular articles; we desire the Reader to take notice that he will find the first 12 engraven in the Copper-Plate, Number I.

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